

NAVAL POSTGRADUATE SCHOOL MONTEREY, CALIFORNIA



THESIS

**THE ROLE OF THE PHILIPPINE NAVY
TOWARDS SUSTAINING ENVIRONMENTAL
AND ECOLOGICAL INTEGRITY FOR THE
PHILIPPINES**

by

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June, 1995

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ENVIRONMENTAL AND ECOLOGICAL INTEGRITY FOR THE
PHILIPPINES**

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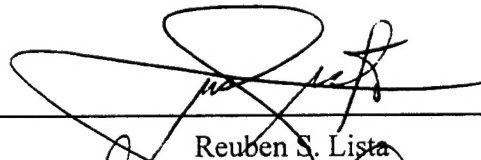
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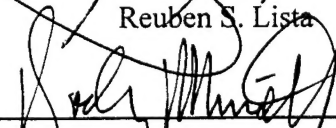
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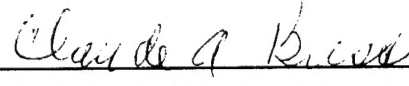
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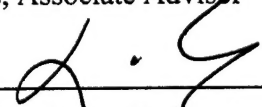
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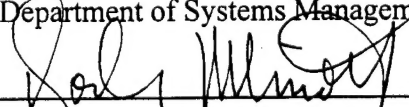
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ABSTRACT

With the end of the Cold War, most countries enjoy stable borders without threat of military conflict. International treaties have provided an assurance of relative safety. A multipolar world will bring in new and unexpected problems in the International arena. But even as most countries enjoy stable borders, the threat of nuclear conflict is disappearing and International treaties and organizations provide assurances of protection - we are seeing in this era a realignment of interests, new alliances, and new forms and causes of regional violence. Rising population, over harvesting of fish, depletion of forests and the overuse of ground water reserves will lead to unemployment, inflation and declining productivity in many countries and such conditions will threaten world stability. These are in addition to the traditional concerns we have and farther aggravated as we enter a period of unrestrained population growth, inequitable and wasteful use of natural resource, and the degradation of critical environmental services will increasingly affect international behavior and relations and threaten the goal of common security. Being an archipelagic country, it is only natural for the Philippines to take special and vital interests over its water and aquatic resources. Also, ecological disorder is increasingly viewed in National Security terms and related conflict and violence around the world, raising the issue of the role of the military in responding to the problem of environmental degradation and marine pollution. This study addresses the role of the Philippine Navy in the environmental security of the Philippines.

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I. INTRODUCTION

A. BACKGROUND

The Philippines today is beset by national issues that could invariably impact on its international status. These issues include the government's handling of the Flor Contemplacion case which involved the hanging of a Philippine contract worker in Singapore last March 1995 who has been charged of killing another Philippine maid, Delia Maga, and her epileptic ward; the critical stance of the Philippines with regards to the Spratlys problem in the face of possible negative reactions due to the continued detention of Chinese fishermen in Palawan; and, the final and official outcome of the May 8 elections. This paper is presented in the light of the aforecited developments, particularly with the recent passage of the Armed Forces of the Philippines (AFP) modernization bill that has allocated some P60 billion in upgrading the AFP's capability to handle both internal and external security threats.

On the international plane, we are witnessing the evolution of a scenario where, with the demise of the Soviet Union and the end of the Cold War, there appears to be a trend towards multi polarity as differentiated from a bipolar world that existed during the Cold War years. As a result, every day brings something new and unexpected in the international arena. But even as most countries enjoy stable borders with the threat of nuclear conflict disappearing and international treaties and organizations providing assurances of protection, a realignment of interests, new alliances and new forms and causes of regional violence becomes more evident.

How relevant is this view to this study? Peter H. Gleick in his book entitled "Environment, Resources and Security" mentions that "the seeds of a growing discontent will be found, not in traditional competitions but in economic disputes between the rich and the poor, in transnational environment pollution, and in the diminishing quantity and quality of resources." [Ref. 1]

Further expounding this view, the Worldwatch Institute, an environmental group, warns in its report that virtually every government in the world faces a growing danger to its

national security -- environmental degradation on a scale that it threatens to undermine governments around the globe. "Unless security is redefined quickly and priorities reordered accordingly, our children will face an economically impoverished and politically volatile future - a future so different from the recent past that we cannot easily imagine what it will be like", says the 1995 "State of the World" report recently released by the Worldwatch Institute. The report continues that rising population, over harvesting of fish, depletion of forests and the overuse of ground water reserves will lead to unemployment, inflation and declining productivity in many countries and such condition will threaten world stability [Ref. 2]. The report likewise mentions the dwindling food supplies in the United States where environmental concerns are more pronounced and have been in existence for a longer period than in the Philippines. These are in addition to the traditional concerns which have been further aggravated as we enter a period of unrestrained population growth, inequitable and wasteful use of natural resources and the degradation of critical environmental services which will increasingly affect international behavior and relations and threaten the goal of common security. [Ref. 3, 4, 5, 6]

Why this concern for environmental issues? And what has the Armed Forces of the Philippines or for that matter and in this particular case, the Philippine Navy got to do with the issue at hand?

For one, ecological disorder is increasingly viewed in national security terms and related to conflict and violence around the globe, raising the issue of the role of the military in responding to environmental degradation. This view is based on the US Navy's study entitled "The Environment and National Security: the US Navy's Capabilities and Requirements" which tried to respond to the following questions:

- Which environmental issues are most significant for national security?
- Which environmental issues most require military participation for their resolution?
- How will environmental tasks affect the navy's primary mission of deterrence and defense?
- To what extent will environmental tasks compete with traditional missions? How can environmental efforts reinforce traditional roles?, and

- What are the budgetary implications of greater involvement in environmental issues by the Navy? [Ref. 7]

This paper will not attempt to provide comprehensive answers to the above questions as the US Navy study apparently did but will only present data that will support the recommended actions which are deemed sufficient to effectively address the problem at hand, in consideration of the limitations confronting not only the Armed Forces of the Philippines but the entire bureaucracy as well. For the purpose of this paper, it would be worthwhile to consider the significant views put forward in the US Navy's study, viz:

- That the environment can act as a source of international conflict either directly or indirectly. Directly, a conflict can erupt over resources such as oil, strategic minerals and, increasingly, water. Disputes can also arise between states which share a river over pollution by the upstream parties or use of the river for dams or hydroelectric purposes. Bad resource management could also act as direct source of conflict. If a state's poor environmental practices cause flooding or severe soils degradation, population movements or economic deprivation may follow, creating conditions for national or international crisis.
- That the environment as an indirect impetus to conflict is an even greater problem, especially the process in which economic deprivation induced by the environmental damage further increases strains on society, leading to violence within a country or with its neighbor. Examples include the Philippines where resource scarcity is a factor behind the communist-led insurgency, Peru and the rise of Sendero Luminoso, communal violence in India's Assam province, and the Senegal-Mauritania confrontation in West Africa. The fact that most environmentally-driven conflicts will occur in the developing world does not mean they could not affect the interest and security of other countries. Such conflicts could threaten other nations' trade and investment links, expand to threaten their direct interests further afield, exacerbate divisions and set back the cause of democratization in the Third World.
- That throughout history, the environment has been a target for military forces in conflict, in some cases to deny opposing military forces an advantage and in others to deny the adversary the bounty of the land being contested. Dams and irrigation systems have been frequent targets for armies in this century. In the post-Cold War era, deliberate destruction of the environment so as to provoke the international community, arouse public opposition and possibly deter military action by turning potential benefits into dangers, are new uses of the environment as a target in war. Iraqi actions in the Gulf War illustrate these new dangers. As public and political perceptions of the value of the environment increase, higher

standards of environmental prudence by military commanders maybe demanded, and sustaining support for military operations may become harder. The environmental precedents of the Gulf War also raise the problem of conducting military operations in a toxic environment, as well as the prospect of ecoterrorism outside wartime conditions. The US Navy study further noted that Russia and other successor states of the USSR face the threat of ecological disaster on a massive scale. Russia has admitted that it dumped 18 reactors from Soviet nuclear submarines, releasing 2.5 million curies of radiation into the Arctic and Sea of Japan- the equivalent of five Chernobyls. In 103 cities, home to 70 million people, the air has five times the allowed limit of pollutants, and environmental degradation is feeding separatist sentiment in some regions of Russia. Today, the ability of the central administrative structure to address these problems is questionable and may yet pose an obstacle to a successful transition to democracy in Russia.

- That the fundamental responsibility for executing national environmental policies will rest with government agencies other than the military which will complement the activities of others. In pursuing environmental objectives, the navy should focus on those areas in which it can offer unique advantages. At the same time, the Navy must be concerned in its environmental activities to avoid losing its primary focus. [Ref. 7]

B. THE PHILIPPINE STAKE

Being an archipelagic country, it is only natural for the Philippines to take special and vital interest over its water resources in general and in its aquatic resources in particular. In an article entitled "Looking at the Pre-Hispanic Community", R Fox wrote that scientists examining the distribution of known Philippine archeological sites have theorized that the early Filipinos' culture were generally either coastal, near coastal or riverine in orientation. These scientists asserted that it was in those areas (Manila, Cebu, Butuan, and Jolo) where Filipino culture and society flourished. Fox's article essentially reflected the importance placed by the Filipinos on the nation's coasts and its resources. [Ref. 8]

This special interest took a more concrete form with the passage of Presidential Decree #1599 which established the country's own 200-mile exclusive economic zone (EEZ), in effect expanding the area covered by Philippine waters, estimated in 1987 to be 2.2 million square kilometers (sq. km.). Under the Philippines' 200-mile EEZ, coastal waters, comprising the area from the shore to an offshore point 200 meters deep make up 266,000 sq. km..

However, despite the vast area covered by marine waters, traditional fishing grounds have been limited to only 126,500 sq. km.. with the rest remaining commercially unexploited. This area falls within what is considered as the country's ten richest fishing grounds based on the latest survey conducted by the Philippines' National Statistics Office (NSO) which include the Visayan Sea, the Moro Gulf, East, West and the Southern portions of the Sulu Sea, Lamon Bay, Samar, Bohol Sea, Leyte Gulf and Tayabas Bay.

In an effort to further stress this point, the National Security Council (NSC) of the Philippines, more than a couple of years ago, redefined the concept of national security as the "state or condition where the people's way of life, their welfare and well being are protected and enhanced." In this context, national security is said to be concerned with seven elements -- moral and spiritual consensus, cultural cohesiveness, political stability, economic solidarity, ecological balance, territorial integrity and external peace and harmony.

As a major element of national security, the government's interest in preserving the seas, the coastal areas and its resources is not without basis inasmuch as the country abounds not only in marine but also in inland water resources. In 1987 when the latest maritime survey was conducted and the data compiled by NSO, there were found to be 200,000 hectares of reservoirs, 31,000 hectares of rivers and 222,000 hectares of developed brackish water and freshwater fishponds. Unfortunately, 70 percent of the Philippine mangroves have so far been destroyed due to conversion, industrial development, harbor expansion and other environmental abuses. Only 28 percent of the country's original expanse of wetlands totaling 500,000 hectares remain today. Compounding the situation is the occurrence of disasters, such as killer floods and landslides. [Ref. 9]

It is against this background that the Philippine Navy has found itself realigning its role to respond to the ecological requirements for the past couple of years. The first ever indication of the Navy's cognizance of the urgency of the situation was made public by the Flag Officer in Command (FOIC) of the Philippine Navy, Vice Admiral Mariano Dumancas Jr. when he issued a policy statement on the eve of the Navy's 95th anniversary on June 24, 1993. In the said statement, Vice Admiral Dumancas announced that environmental protection is shaping up to be an important part of the fleet's mission. Dumancas further

described the new dimension of the navy's mission as "going green." He said that the navy's 95th anniversary theme of "Malinis at Masaganang Karagatan para sa Pilipinas 2000" or "Clean and Bountiful Seas for Philippines 2000" is in keeping with the navy's proposed modernization program up to year 2000. Under this modernization plan which is envisioned to cost the government some P60 billion, the navy has already taken into account its perceived role in the overall environmental protection program of the government.

During the anniversary celebration on the following day, Dumancas, in an apparent effort to stress his point, cited in his speech the losses in terms of pesos suffered by the country due to ecological malpractice to include the following:

- P47 billion annually from illegal fishing and poaching alone.
- P1.6 billion due to the drop in fish harvest as of 1992.
- P38 million in illegal coral harvesting.

To offset such losses, Dumancas confirmed that the navy already has plans of acquiring six additional fast attack craft, including three missile gunboats, to help it enforce maritime regulations, stop poaching and smuggling and ensure the integrity of the country's territorial waters and exclusive economic zone. [Ref. 10]

Suffice it to say at this juncture that the Philippine Navy's modernization plan best reflected this new consciousness of the environment. The succeeding chapters, sections and sub-sections will help us appreciate better the challenges facing the Philippine Navy as well as the options/courses of action in operationalizing its goal of actively pursuing a definitive role in the campaign to attain an ecological balance and integrity for the Philippines.

C. DEMOGRAPHIC DATA

1. Physical Features

The Philippine Atlas describes the country as consisting of 7,107 islands with a total land area of 299,765 sq. km.. and a coastline of about 17,460 kilometers long. The irregular configuration of the archipelago, the great extent of mountainous country, the narrow and interrupted coastal plains, and the generally north-south orientation of the river systems comprise the salient physical features of the country.

2. Territorial Waters/Coastal Resources:

According to the same general reference book, the Philippine territorial waters cover about 2.2 million sq. km.. of which 88 percent is oceanic and 12 percent is coastal. The coastal zone covers a total area of about 11,000 square kilometers of land and 267,000 sq. km.. of coastal waters. As expounded by Mr. Rogelio N Concepcion (Assistant Director, Bureau of Soils and Water Management and concurrent Project Manager, Soils Research and Development Center) in his paper entitled "Identifying and Capturing Global Niches in Agricultural and Aquatic/Marine Technologies" presented to the workshop on Strengthening the Knowledge Industries/Infrastructures in the Philippines on November 6-7, 1993 at the Development Academy of the Philippines in Tagaytay City, the shoreline is about 17,600 km and the territorial waters total to 220 million hectares, where the coastal areas represent 12 percent and the oceanic resources occupy the remaining 88 percent. Within this area resides about 55 percent of the country's total population, estimated at 65 million in 1993. About 70 percent of the 1,525 municipalities in the country, including ten of the largest cities, is located in the coastal zones. The country is replete with beaches, gulfs and coves that provide significant recreational diversions. As part of its vast wealth of resources, the coastal areas contain valuable resources of high floral and faunal species diversity. [Ref. 11]

D. MARINE AND FRESHWATER RESOURCES

1. Mangrove Forests

In a forum on ecological issues held in Malacanang Park on July 29, 1994, Mr Jim Paredes, the President of Green Earth Movement, a non-governmental organization concerned about environmental degradation in the Philippines, said that the country's original expanse of mangrove forests was estimated in 1918 to be 500,000 hectares. However, the National Fisheries Research Program of the Department of Agriculture pointed out in one of its publications that these mangrove forests which are the most important breeding grounds or nurseries for tropical fishes have been ecologically abused. From the original figure of 450,000 hectares to 500,000 hectares, only about 100,000 can be considered viable and ecologically alive. Similarly, Paredes lamented that only 28 percent of this area remain

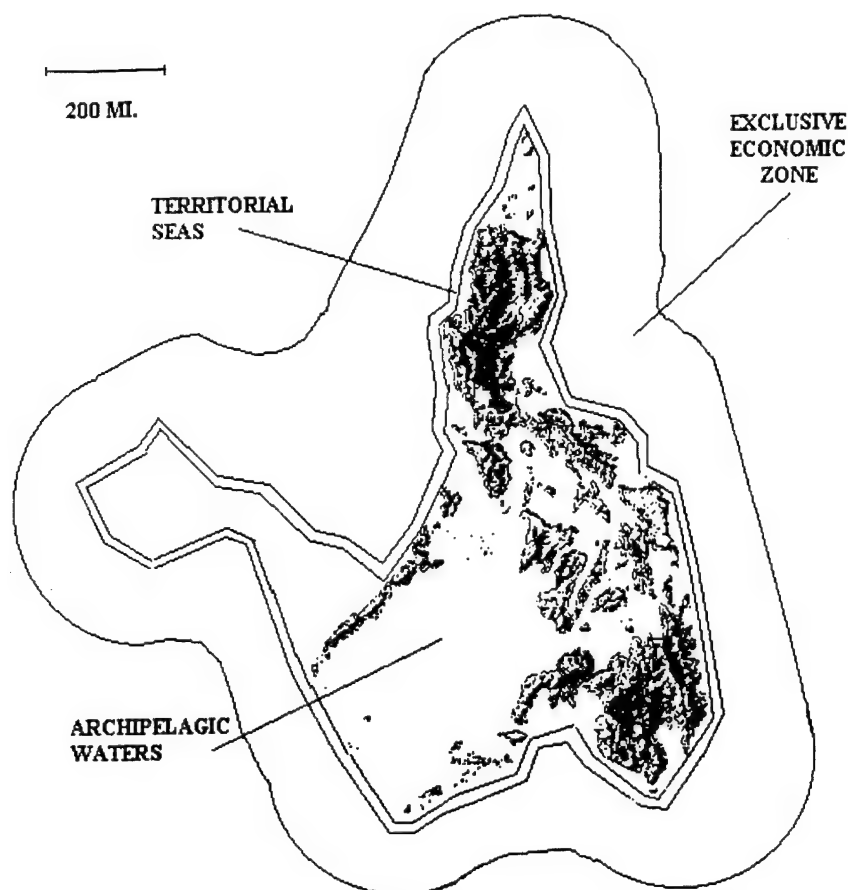


Figure 1. Maritime Area

today. Background papers used by the Philippine Congress in studying the ecological situation of the Philippines revealed that by 1970, the area covered by the mangrove forests has gone down to 288,000 hectares in 1980, a decade later. Mr. Jim Paredes said that even during that time, the Philippines was one of the 30 countries with the largest mangrove areas in the world. The NSO in 1988 placed the country's mangrove forest area at 139,725 hectares. Based on these figures, it is quite clear that between 1970 and 1988, nearly 148,000 hectares of mangrove were lost which Mr. Paredes claimed was equivalent to losses of some US\$3 billion worth of forest and fish products every year as well as other social and environmental services. These losses were blamed by Mr. Paredes on the increasing demand for prawn imports by such countries as Japan which led to the conversion of the country's mangrove forests into shrimp and prawn ponds. According to the study made by the Department of Environment and Natural Resources (DENR), mangrove fauna include some

68 species of fish, 54 species of crustaceans, 65 species of mollusks, 56 species of gastropods as well as 166 species of flowering plants, not to mention deer, wild pigs, monkeys, bats, rats, eagles, crocodiles, monitor lizards, snakes, toads and frogs abounding threat. [Ref. 12]

2. Fisheries Production

Philippine fisheries production comes primarily from the coastal areas. The DENR reported that the annual fish yield (including vertebrates) of Philippine reefs ranges from 5 and 24 tons per sq. km. It is estimated that 10 to 15 percent of total marine fisheries production is contributed by coral reefs. According to NSO, the fishing industry directly employs around one million fishermen and workers apart from the indirect employment generated by related and allied activities such as fish marketing and distribution, fish processing, operation of ice plants and cold storage, net making and repair and boat building and repair. The Philippine Statistical Yearbook of 1991 revealed that during the period 1981-1990, the total value of fish domestically produced grew at an annual average rate of about 16.2 percent from 13.9 billion in 1981 to 52 billion in 1990. On the other hand, the quantity of fish caught grew annually at an average rate of almost 4 percent from a level of 1.8 metric tons in 1981 to about 2.5 million metric tons in 1990. [Ref. 12]

3. Coral Reefs

According to Mr. Paredes, the Philippines belongs to the so called "Coral Triangle", having 400 of the 500 well-known coral species in its waters. On the other hand, the paper of Mr Concepcion revealed that the shelf area with a depth of 200 meters amounts to 18.5 million hectares while the coral reef area totals to 2.7 million hectares. Unfortunately, studies indicated that -- seventy percent (70%) of the coral and reef areas which contribute to about 15 percent of the fish production in the country, is already ecologically damaged; 32 percent of coral reefs are in poor condition (0-25 percent living coral cover); 39 percent in fair condition (25-50 percent cover), 24 percent in good condition (50-75 percent cover) and only 6 percent remain in excellent condition (75-100 percent cover). A DENR report showed that 75 percent of the country's coral reefs are now destroyed due to illegal methods, natural calamities and pollution. [Ref. 12]

4. Freshwater Area

The NSO figures on the country's freshwater area showed that it has about 569,000 hectares which include over 100,000 hectares of freshwater swamps, 58 natural lakes, 421 rivers and a large number of reservoirs and fishponds. With an annual average precipitation of 2,269 millimeters and average run-off of about 257 billion cubic meters, the Philippines is theoretically assured of ample water to meet its needs. [Ref. 9]

5. Groundwater Resource

There is also an abundant groundwater resource which NSO estimated at 260 billion cubic meters in 1980. Groundwater is primarily used for domestic water supply serving 28 percent of the population. The total groundwater withdrawal for domestic use is estimated at 2 billion cubic meters per year.

To stress the importance of water resources, it was determined way back in 1975 that agricultural uses accounted for about 85 percent of the total water demand, followed by domestic uses with 1 percent and industrial uses with 3 percent. However, with the increase in population and industrialization, it has been projected that by the year 2000, industrial uses would account for about 11 percent of the total water demand, domestic uses for 15 percent and agriculture for around 74 percent. [Ref. 9]

II. ENVIRONMENTAL CONCERNS

A. BEGINNINGS OF ENVIRONMENTAL AWARENESS

Industrialization indeed has its cost and trade-offs. In the Philippines, accelerated development activities in the late 1950s and early 1960s began to generate external diseconomies readily visible as air, water and land pollution in urban areas. Even during that period, there already existed in the country one of the earliest environmental pressure groups, the Philippine Society of Sanitary Engineers, which lobbied for the enactment of a legislation on pollution control then pending before the Philippine Congress. On June 18, 1964, Republic Act #3931 (the enabling law which created the National Water and Air Pollution Control Commission) was passed. It was not until 1966, however, that this pollution control law was finally implemented but the Commission received only token funding. Also, the said law was largely ineffective because the Commission was not vested with any real powers and sanctions. In retrospect, the passage of a relatively weak environmental legislation during this period could be possibly attributed to the success of the strong and dominant intervention made by powerful industrial interests.

In the 1960s, the environmental movement in the US received powerful impetus from a wide spectrum of public support. Such US-inspired environmentalism was to eventually reach the Philippines. With such influence came the emergence of an increasing interest in environmental reforms. In July 1976, an inter-agency Committee on Environmental Protection (IACEP) was created in the Philippines by Presidential Letter of Instruction #422 and was placed under the coordinative direction of the Department of Natural Resources. This Committee was tasked to prepare and submit a report to the President on the state of the environment and to review existing government policies and programs on environmental protection.

The findings of the committee were as follows:

- There was uncoordinated implementation of environment-related policies, programs and projects among at least 20 government agencies with their own sectoral responsibilities in environmental protection and management.

- There was lack of adequate environmental legislation and agencies with the requisite regulatory powers.
- There was no mechanism for evaluating the environmental impact of development projects. [Ref. 13]

Subsequently, the committee recommended the rationalization and integration of disparate environmental policies and programs and the consideration of three possible alternative institutional mechanisms for effecting those programs, namely:

- The creation of a central environmental agency.
- The creation of an inter-agency organization for environmental protection.
- The strengthening of existing agencies with specific sectoral responsibilities that have environmental quality implications.

However, recommendations pertaining to the creation of a single agency and the strengthening of existing ones were rejected because of the anticipated difficulty of having one government department regulate the other agencies in so far as environmental matters were concerned and of reconciling in one department the apparently contradicting objectives of environmental protection on one hand and on the exploitation and utilization of resources on the other.

The creation of an inter-agency organization became the preferred institutional option. IACEP was reconstituted into the National Environmental Protection Council (NEPC) on 18 April 1977. The Council, chaired by the President with 14 members, was tasked to rationalize the functions of environment-related government agencies for the coordinated conduct of environmental protection activities and the implementation and enforcement of environmental laws. The establishment of the NEPC was accompanied by the passage of important environmental legislation. For example, the enabling law of the National Water and Air Pollution Control Commission was amended and strengthened. Other landmark environmental bills were also enacted, including the Philippine Environmental Policy Law (PD 1152).

The period between 1976 and 1981 was unproductive in terms of environmental policy formulation. This was because the Marcos regime was more preoccupied with struggling to remain in power as it was faced with other national policy concerns, like the

growing level of insurgency, the massive capital flight, the contracting economy which tended to generate more poverty, unemployment and other economic ills; thus effectively overshadowing environmental concerns.

The takeover of the Aquino Administration in February 1986 ushered in new positive developments in the ecological field. For one, the World Commission on Environment and Development issued its "Our Common Future" report which helped place development and environmental concerns of the Philippines at the forefront of planning and decision-making. Eventually in June 1987, Executive Order #192 created a reorganized Department of Environment and Natural Resources whose main function is to "ensure the sustainable use, development, management, renewal and conservation of the country's forest, mineral lands, offshore areas and other natural resources, including the protection and enhancement of the quality of the environment."

B. PRESSING ENVIRONMENTAL PROBLEMS

The increasing awareness on the environment and its protection has further led to closer scrutiny of the major environmental problems of the country. For the purpose of this study, focus will be made on environmental issues affecting the Philippines' coastal and marine development. These include: the degradation of mangrove forests and their conversion to other uses; the destruction of coral reefs due to pollution and illegal fishing practices; over fishing beyond sustainable yields; the occurrence of "red tides," and various aspects of marine pollution. The quality of coastal waters has also rapidly deteriorated over the past decade primarily due to sewage and industrial effluents from urban areas, tailings from mining activities, oil spills from shipping operations, and fertilizer and pesticide residues from agricultural run-off. [Ref. 14]

1. Mangrove Degradation

Mangrove cutting to make way for fishponds, harvesting for charcoal and fuel wood production, and expansion of coastal communities account for the steady decline in mangrove areas. About 95 percent of the total 288,585 hectares of fishponds are converted

mangrove areas. Aside from man-induced degradation, mangroves are also susceptible to damages from monsoon winds and typhoons.

2. Illegal Fishing Practices

Destructive fishing practices like blast fishing, cyanide fishing and muro-ami fishing have contributed to the destruction of corals. Muro-ami fishing which drives fish towards a bag or gill net by using vertical scare lines festooned with streamers, break-up brittle hard coral due to the impact of scare line weights on the sea bottom. Muro-ami fishing was officially banned in 1986.

3. Red Tides

Another cause of degradation of the mangrove forests is a marine phenomenon called the red tide which involves the bloom of floating phytoplankton known as dinoflagellates with characteristic orange brown or red color and which cause adverse health and economic impact. The exact cause of toxic dinoflagellates blooms has not been fully determined but toxic red tides have become an increasing concern because of the resulting paralytic shellfish poisoning leading to death.

4. Marine Pollution

The most disastrous and more widespread form of marine pollution is apparently oil spillage. Oil spills have occurred in the Philippines. Based on documentation done by the Philippine Coast Guard, at least two oil spills happened in 1994, one in Laguna de Bay with the oil spill from the NAPOCOR's Malaya plant, and another in Ulugan Bay, Palawan from Philippine Navy vessels.

A Philippine Navy Officer, Cdr Cecilio I Yutadco Jr, prepared a comprehensive study on "Marine Environmental Protection in the Philippines" which put forward the following significant findings:

The marine pollution problem in the country is largely brought about by industrial wastes, garbage, wood residue, sand slime, cinder ashes, offal, night soil, sewage matter and other refuse. Marine pollution is quite rampant in Pasig River and in Manila bay. It was noted that on the first week of October 1994, fish and other marine life were found dead along the shores of Manila Bay. The Bureau of Fisheries and Aquatic Resources (BFAR) of the

Department of Agriculture, meanwhile, had reported that the fish died of poisoning because of the toxic substances dumped by various cargo vessels anchored at the Manila Bay. BFAR also said that domestic waste from different establishments near the bay contributed to the water's heavy pollution. Significantly, the Department of Environment and Natural Resources (DENR) has already urged the Philippine Coast Guard to check on vessels anchored at the Manila Bay. Said vessels are reported to be dumping their liquid wastes and even chemical discharges into the Bay. [Ref. 15]

Similar studies showed the status of pollution in other areas, such as the Tenejeros-Tullahan River, where a large number of small and medium industries are located, and which has been found to be even more polluted with an annual average BOD range of 50-150 milligrams per liter. The country's largest lake, the 90,000 hectare Laguna de Bay, receives wastewater effluents from about 986 factories around Metro Manila, as well as domestic wastes from septic tanks and pesticide and fertilizer-laden agricultural run-off. Siltation from the surrounding denuded areas and eroded banks of its river tributaries has resulted in a shallower lake.

In other parts of the country, the rivers are heavily silted with mine tailings, particularly in the northern part of the country where many of the mining companies are located. Sugar mills, fermentation alcohol plants, coconut oil mills and desiccated coconut factories contribute heavily to the pollution of the country's rivers and lakes since conventional treatment technologies have proved to be inadequate to handle the pollution problem. More advanced technologies have been found to be too costly requiring huge initial capital outlay and high operating costs. The numerous small and medium scale industries, such as electroplating plants and tanneries, have no or grossly inadequate treatment facilities and contribute significantly to the amount of toxic and hazardous wastes reaching the country's waterways. Relatedly, Omar Calimbas has found evidence that the Philippines is a favorite dumping site of hazardous waste [Ref. 16].

Since 1985, the Philippine Coast Guard has monitored some 53 incidents of oil spills due to shipping and oil handling-related accidents occurring in Philippine waters. These major oil spills involved more than six million liters of oil. This volume did not include the oil spills which are less than 400 liters as well as the numerous deliberate and indiscriminate

dumping/discharges of oil and oily waters made by vessels plying the domestic route from Manila Bay to the southern islands of the country.

Cdr Yutadco Jr further made an analysis of the major spills that occurred in Philippine waters which showed that:

- Almost half of the spills, 47%, involved 50-5,000 barrels (7590-794,937 liters) and only 6% involved more than 5,000 barrels.
- Accident situations (sinking, collision, grounding and others) comprised 71% of oil spills while majority of the spills, 29%, occur during cargo handling operations such as loading, bunkering and discharging.
- Sinking due to typhoon or bad weather has caused the spill of 5,000 barrels (794,937 liters). [Ref. 15]

5. Major Violation Incidents

As mandated, the Philippine Navy has embarked on marine protection activities that include the monitoring of violations against marine life along the coasts and in the country's territorial waters. Although data are not available on a yearly basis, the following major violation incidents have been recorded by the Philippine Coast Guard for a specific year (1994), Tables 1 through 6, which will show us the gravity of the problem.

The total collection for the one-year period was P47,000.00. Notably, not all of those apprehended were meted fines as specified in the Law/Memorandum Circulars. Moreover, the fines are noted to be very minimal compared to the damages done to the marine environment.

DATE	NAME OF VESSEL	VIOLATION	FINE
19 Jan 91	MT FEATHERAY G11	Oil Spillage	P 800.00
09 Mar 91	MV LA CARLOTA	Oil Spillage	Warned
05 Apr 91	MV EKBER	Oily Mixture and Waste Discharge	P2,000.00
13 May 91	MT EVY	Oil Spillage	P2,000.00
10 Jun 91	SAN MIGUEL CORP	Discharging Industrial Waste	Endorsed to LLDA
06 Jul 91	MT PETRO QUEEN	Illegal Tank Cleaning	P6,000.00
07 Aug 91	MB ADETER	Viol of MC 01-91	P1,000.00

DATE	NAME OF VESSEL	VIOLATION	FINE
21 Aug 91	MV PREMSHIP II	Viol of MC 01-91	P3,000.00
11 Sep 91	MT HERMA I & II	Viol of MC 01-91	P5,000.00
26 Sep 91	MT SIDEWINDER	Discharging Toxic Waste	Warned
06 Nov 91	MT FERDINAND	Viol of MC 01-91	P1,000.00
06 Nov 91	MT JOHN	Viol of MC 01-91	P1,000.00
06 Nov 91	MT PEACHERON	Viol of MC 01-91	P2,000.00
04 Dec 91	MV WOLVERINE	Viol of MC 01-91	P1,000.00
06 Dec 91	MT NAZAL I	Oil Spillage	
		TOTAL	P24,800.00

Table 1. First Coast Guard District Major Violations

DATE	NAME OF VESSEL	VIOLATION	FINE
17 Apr 91	FV WILMAR V	Oil Spillage	Issued IAR
22 Sep 91	MV SWEETHEART	Viol of MC 01-91	Issued IAR
22 Sep 91	MV LEGASPI	Viol of MC 01-91	Issued IAR
08 Oct 91	MV ORMOC	Oil Discharge	Issued IAR
14 Nov 91	MV CAGAYAN EXPRESS	No Sewage Tank	Issued IAR
18 Nov 91	MV MARINE JOY	Viol of MC 01-91	Issued IAR
18 Nov 91	MV TERBEE	Viol of MC 01-91	Issued IAR
17 Apr 91	FB WILMAR	Oil Spoilage	Issued IAR

Table 2. Second Coast Guard District Major Violations

DATE	NAME OF VESSEL	VIOLATION	FINE
05 Jan 91	FB CORAL SEA	No Sorbente	P700.00
01 Feb 91	FB JEORGE	Viol off MC 01-91	P2,000.00
	MB SULTANA II	No Sorbente	
08 Apr 91	BB GOLDEN SHOWER	Viol of MC 01-91	P700.00
29 May 91	MV ASIA KOREA	Viol of MC 01-91 No Sewage Tank	P500.00

DATE	NAME OF VESSEL	VIOLATION	FINE
05 Jan 91	FB CORAL SEA	No Sorbente	P700.00
01 Jun 91	MV DONA ISABEL	Viol of MC 01-91	P1,000.00
06 Jun 91	MV MERLYN	Dumping of Garbage	P2,000.00
25 Jun 91	FB CORAL SEA	No Oil Record Book No Sewage Tank	P2,000.00
09 Jun 91	CALTEX DEPOT	Oil Spillage No Oil Spill Boom	
16 Jul 91	MV DONA ISABEL	Viol of MC 01-91	P1,000.00
16 Aug 91	MV SEA QUEEN	No updated oil Record Book No Sewage Tank	P500.00
11 Oct 91	MT ZINNA V	Dumping of Oily Mixture	P1,000.00
27 May 91	MV JQ BAY IV	Viol of MC 01-91	
01 Jul 91	MV KIMPEE 6	No sewage Tank	
07 Jun 91	MV DAVID EDUARD	No sewage Tank	
01 Jul 91	MV LORCON VI	No sewage Tank	
25 Jun 91	PETRON DEPOT	No Oil Spill Boom	
		TOTAL	P11,400.00

Table 3. Third Coast Guard District Major Violations

DATE	NAME OF VESSEL	VIOLATION	FINE
19 Jul 91	MV MINDORO EXPRESS	Issued IAR	
17 Aug 91	MV SULCON 7	Issued IAR	

Table 4. Fourth Coast Guard District Major Violations

DATE	NAME OF VESSEL	VIOLATION	FINE
13 Feb 91	KEPPEL PHIL	Discharge of Used Oil	P500.00
21 May 91	MV DIAMOND	Viol of MC 01-91	
22 May 91	MV TRIPLE - U	No Dispersant	P400.00
16 May 91	MV AC - VI	Dumping of Non-Biodegradable waste	P1,000.00
18 Jun 91	MV STO NINO	Viol of MC 01-91	

DATE	NAME OF VESSEL	VIOLATION	FINE
13 Feb 91	KEPPEL PHIL	Discharge of Used Oil	P500.00
19 Jun 91	MV MARIAN QUEEN	Viol of MC 01-91	
10 Jul 91	MV PENAFRANCIA		
12 Jul 91	SHELL REFINERY	Oil Spillage	
14 Jul 91	MV THIN YIN	Discharge Oil-Waste Materials	P1,000.00
27 Aug 91	MV BATANGAS EXPRESS	No Sorbents	
03 Sep 91	MV MARIAN QUEEN	Viol of MC 01-91	
09 Sep 91	MV STO NINO	Viol of MC 01-91	
24 Sep 91	MV VIVA PENAFRANCIA	Viol of MC 01-91	
30 Sep 91	MV STA MARIA	Viol of MC 01-91	
30 Sep 91	MV KRISTOFFER	Viol of MC 01-91	
17 Oct 91	MV STO DOMINGO	Viol of MC 01-91	
14 Oct 91	MV MA SOCORRO	Viol of MC 01-91	P400.00
23 Oct 91	MT OSCO CHIEF	Oil Spillage	P1,000.00
		TOTAL	P 4,300.00

Table 5. Fifth Coast Guard District Major Violations

DATE	NAME OF VESSEL	VIOLATION	FINE
07 Mar 91	MV BUFFALO	Illegal Oil Discharge	P2,000.00
14 Jul 91	DAVAO UNION	Viol of MC 01-91	P3,000.00
25 Nov 91	ML QUEEN OF PACIFIC	Viol of MC 01-91	P1,000.00
25 Nov 91	ML ALFONSO	Viol of MC 01-91	P500.00
		TOTAL	P 6,500.00

Table 6. Eighth Coast Guard District Major Violations

C. THE CONTINUING THREAT OF MARINE POLLUTION

1. The Laguna de Bay Experience

Laguna Lake, or Laguna de Bay, is one of the prominent bodies of water found in the country. It features an array of different species of marine life at par with the ones found in the Great Barrier Reef. It has also been the source of livelihood for most fishermen in the Laguna and Rizal provinces. But with the abrupt coming of industrialization and progress, the lake became polluted, and finally deteriorated. Laguna de Bay is an enormous body of water from which a number of tributaries {small lakes and rivers} flow. Out of the 21 tributaries of the lake, six are major tributary rivers namely San Isidro, San Cristobal, San Juan, Santa Cruz, Pagsanjan, and Bay Rivers. And of the six, the San Pedro River ranked as the most polluted with almost zero dissolved oxygen level and with a very high ammonia concentration and coliform density, while the San Cristobal is the second most polluted river in the Laguna de Bay region. There are ongoing efforts to revive and rehabilitate the two rivers since the water quality of Laguna de Bay remains at Class "C" or suitable for fishery and fishing operation.

The result of this domino effect was simply devastating. Based on earlier studies on the lake and its environs, schools of fish were found to have migrated to other waters far from Laguna de Bay. Fishermen found it hard to trap a handful catch in a day. One of the findings showed that this resulted from the presence, along its shorelines, of some textile and garment factories emitting deadly toxins and chemicals into the lake. A person can only sigh as he watches clusters of waterlines floating on its almost muddy, nonexistent waters. Laguna Lake would surely die if no appropriate action is taken to save it from further deterioration.

In 1969, the government established the Laguna Lake Development Authority (LLDA), a government-owned and controlled corporation mandated to manage the Laguna de Bay Region towards sustainable development. Today, LLDA, with the help of the technical staff and researchers from the University of the Philippines, Los Banos (UPLB), Southeast Asian Fisheries Development Center (SEAFDEC), and the Binangonan Freshwater Substation (BFS), is conducting a series of studies and researches and a continuous

monitoring of Laguna de Bay's waters and the industries mushrooming in the area. LLDA has launched various programs and projects to revive the lake and stop the destruction and deterioration of its aquatic resources. For the period January to November 1994, LLDA had collected and analyzed water samples of 4,078 lakes and rivers as part of their water quality monitoring. Based on its own records, the LLDA in 1994 issued Cease and Desist Orders (CDO) to 17 industrial establishments and open-dump site operations, particularly the Camarine Dump Site Operation, to protect the lake's ecological integrity. Although there are still factories operating in the east side of the Laguna Lake Region, LLDA is continuously monitoring the factories' activities. It is also requiring these industries to install pollution control devices to minimize and regulate the emission of harmful elements in the air and water. In 1995, the LLDA has taken the step of conducting a total of 105 public hearings involving pollution control and abatement cases. Only three of these cases were dismissed and issued regular permit to operate.

Other development projects spearheaded by the LLDA are the comprehensive municipal development plan in Pila, Laguna and the Paete-LLDA joint wood production project which encourages reforestation in the area for the primary purpose of sustaining the supply of woods and logs for the use of the woodcraft industry in Paete, a town in Laguna. LLDA also started an information and livelihood program for the barangays in Rizal and Laguna. Dubbed "Damayan sa Lawa," the project provides assistance in the conduct of information, education, and motivation campaigns on health and sanitation.

Being true to its principle of working with nature, the LLDA is controlling and regulating the construction of fishpens and cages in accordance with the capacity of the lake. In the future, it is planning to tap and divert the waters on the east side of the lake to water systems of Metro Manila. To do this, it must relocate the industries within the area to the west side of the Laguna de Bay region. This plan is expected to address the water crises during the dry season. But there are still ongoing studies regarding its viability and feasibility.

2. The Manila Bay Experience

According to environmental studies done by the Green Earth movement, more than 300 factories dump thousands of gallons of waste water into the Pasig River daily which ultimately end up in Manila Bay. Additional thousands of gallons of sewage is flushed daily by Metro Manila households through sewage systems which also end up in the Bay. Accordingly, every time it rains, massive amounts of poisonous substances, including gasoline, oil, fertilizer and pesticide are carried into the Bay as run-off from city streets, farms and livestock facilities.

What are these pollutants? Based on documents of the DENR, factories discharge millions of gallons of waste water everyday which flow into the Bay. This waste water which is mixed with thousands of different chemicals can kill marine life, contaminate food supplies and endanger people who eat seafood caught in Manila Bay waters.

Factory wastes are determined to be the biggest sources of pollutants. [Ref. 17] These pollutants consist mainly of toxic organic chemicals and heavy metals. In the manufacture of steel and dry batteries, manganese is used. To produce storage batteries, paints etc., lead is used. In steel manufacturing and leather tanning, chromium is used. Other industrial pollutants that factories dump into the rivers, estuaries and sewage systems that go into Manila Bay are mercury, arsenic, copper, zinc, cyanide and cadmium.

Next to industrial wastes, sewage is another major pollutant. What happens when you flush your toilet? Your waste goes into your septic tank which in turn is connected to a public sewer system that empties into Manila Bay via out falls or through estuaries and rivers. Not known to every Filipino, this sewage waste water and sludge contains considerable amounts of pollution, including bacteria, biological wastes and nutrients such as nitrogen and phosphorous. These pollutants also lead to a reduction in oxygen levels in the Manila Bay and eventually suffocate life in it, according to the DENR.

Another major pollution source that is killing Manila Bay is what is known as "Poison Run-off." Poison run-off from city streets, farms, building sites, parking lots and other common uses of land end up in the Bay every time it rains or a typhoon hits the area.

Poison run-off include such pollutants as sediment (soil, sand), nitrogen and phosphorous, chromium, copper, lead, iron, zinc, oil, gasoline and bacteria.

In addition, the Department of Agriculture has released a study which showed that Filipino farmers use fertilizer and dangerous pesticides to grow crops. These chemicals run-off farmlands and end up in Manila Bay. Even golf courses are a source of run-off. An average golf course uses 2 ½ times as many chemicals as farms just to maintain the quality of the greens.

Last but not the least of the polluters are the plastics and floatable. Non-biodegradable plastic and Styrofoam objects such as packing beads, slippers, fish nets, beverage can yokes, coolers can affect marine life seriously. Fish can ingest plastic bags and other materials which in turn can block stomach openings of fish. Birds can get entangled until they starve to death or drown. [Ref. 14, 17]

The DENR further explained that toxic chemicals and heavy metals dumped into Manila Bay contaminate marine sediments and also concentrate in fish and shellfish. Shellfish, including oysters, mussels and clams, are especially vulnerable to contamination from toxic metals such as lead, mercury, cadmium and chromium. When ingested through contaminated seafood, these metals can cause a range of adverse health effects in humans, including kidney and central nervous system damage and birth defects in urban fetuses. Significantly, many cancer-causing industrial chemicals such as petroleum hydrocarbons, dioxins and PCB's (poly chlorinated biphenyls), contaminate seafood. PCB's accumulate and concentrate in high levels in the fatty tissues of fish.

Dioxin, one of the most toxic classes of substances known can cause cancer and birth defects in humans. Agricultural pesticides such as DDT, dieldrin and chlordane that reached the Bay from farms also contaminate fish. These pesticide residues pose serious long-term health risk to consumers of contaminated fish. Bacteria and viruses brought into the Bay via untreated domestic and medical sewage and sludge also contaminate fish and shellfish. The Department of Health under then Secretary Juan Flavio Velez warned that seafood-borne infection can cause a variety of nasty symptoms including nausea, cramps, diarrhea, fever and vomiting. Many of these infections are a result of dumping sewage into estuaries, rivers out

falls that empty into Manila Bay. Sewage often contains disease-causing micro-organisms such as salmonella, staphylococcus and vibrio bacteria and the virus that causes infectious hepatitis. These originate from wastes from infected households, hospitals and livestock production facilities. It was noted that coastal algae blooms such as the recent "red tide" is caused by massive nutrient loading from sewage pollution and poison runoff. Biological toxins such as ciguatoxin and paralytic shellfish toxins are produced by these algae. [Ref. 18, 19]

Recreational beaches have also become victims of pollution. Since 1985, the bathing quality of beaches from Navotas to Naic, Cavite have not met quality standards. Fecal coliform counts were in the tens of thousands in every 100 milligrams of water. According to both the Department of Health and the Department of Environment and Natural Resources, health wise, this is the unseen danger. People would never know that the waters they are swimming in have bacteria, virus, etc. People only see the unsightly plastics, the Styrofoam and feel the slimy mud slip through their toes as they step into the waters.

As a result of all these, a non-governmental organization, the Manila Baywatch Foundation (MBF) is identifying these pollutants for the public's information to help them avoid eating contaminated fish and shellfish, stop bathing in polluted beaches and, hopefully, to generate their support for MBF's projects. The foundation has implemented various stop-gap measures like the installation of sluice gates in estuaries to prevent the entry of solid wastes into the Bay. Toxic chemicals, heavy metals, bacteria and virus, however, still get through. MBF is presently implementing an "Adopt-An-Estero" program which is being worked out with various schools and an "Adopt-A-Beach" program will also be carried out soon so that the recreational beaches in Cavite and Bataan will be protected from further deterioration. However, despite these stop-gap measures designed to reduce further pollution of the Bay, create public awareness and generate public participation, the gigantic problem of cleansing Manila Bay of the toxic soup that is killing it still remains. Other measures such as intensified public support, funding, strict implementation of anti-pollution laws by government agencies including the Philippine Navy, will be needed.

3. Government Laws on Marine Pollution

The Philippine government, realizing the importance of legal safeguards for its extensive marine environment, has passed several decrees to insure that Philippine seas, rivers, estuaries and other water forms are protected from the damages of pollution, as follows:

- Presidential Decree Nr 600 dated 9 December 1974 otherwise known as the Marine Pollution Decree of 1974. Section 2 of PD 600 declared as national policy the prevention and control of pollution of seas by the dumping of wastes and other matters which create hazards to human health, harm living resources and marine life, damage amenities, or interfere with the legitimate uses of the sea within the territorial jurisdiction of the Philippines. It is significant to note that Section 8 of said Decree authorized and empowered the Commandant of the Philippine Coast Guard (PCG) to prescribe rules and regulations for the purpose of the Decree, to include but not limited to vessel design and equipment, oil transfer procedures, oil transfer operations, communications requirement, supervision of operations, equipment test and inspection. Likewise, Section 9 provided that the PCG shall develop an adequate capability for containment and recovery for inland waters and high seas use. An initial amount of P2 million was also appropriated out of any funds in the National Treasury not otherwise appropriated for the procurement of necessary equipment for this purpose; and that for the succeeding fiscal year, the appropriation for the development of such capacity shall be included in the PCG portion of the General Appropriations Decree.
- Presidential Decree Nr 601 dated 9 December 1974 (Revised Marine Pollution Decree).
- Presidential Decree Nr 602 dated 9 December 1974 established the National Operations Center for Oil Pollution (NOCOP) in the PCG Headquarters. The PD provides, among others, that the Commandant of the Philippine Coast Guard may negotiate directly with local companies which have oil containment and recovery facilities for the use of such equipment in combating oil pollution. NOCOP shall be the point of contact with similar national operations centers of ASEAN member countries and shall cause, when necessary, the immediate call for assistance from such countries to help contain oil pollution, and shall similarly respond to call for assistance by ASEAN member-countries.
- Presidential Decree Nr 979 dated 18 August 1976 otherwise known as the Marine Pollution Decree of 1976 provides that the National Pollution Control Commission (NPCC) will have the primary responsibility to promulgate national rules and policies governing marine pollution, including but not limited to the discharge of effluents from any outfall structure, industrial and manufacturing establishment or mill of any kind to the extent that it is regulated under the

provisions of RA 3931 and to issue the appropriate rules and regulations upon consultation with the Philippine Coast Guard. The PCG, on the other hand, shall promulgate its rules and regulations in accordance with national rules and policies of the NPCC upon consultation with the latter. The PCG shall have the primary responsibility of enforcing the laws, rules and regulations governing marine pollution. However, it shall be the joint responsibility of the PCG and the NPCC to coordinate and cooperate with each other in the enforcement of the provisions of PD 979 and its implementing rules and regulations, and may call upon any government office, instrumentality or agency to extend assistance in this respect.

4. Other Government Agencies Involved in Marine Pollution Prevention

Aside from the Philippine Coast Guard and the National Pollution Control Commission, there are other government agencies which have been tasked to render support in the implementation of the rules and regulations in the prevention of marine pollution, such as the following:

- The Environmental Management Bureau of the Department of Environment and Natural Resources (EMB, DENR) which is concerned with land-based sources of marine pollution.
- Philippine Ports Authority (PPA) which is concerned with pollution in ports and harbors.
- Local Government Units (LGU) of the DILG which are concerned with marine pollution occurring as far as seventeen (17) kilometers from their nearest shorelines.
- Department of Health is concerned with pollution in quarantine areas.
- Maritime Industry Authority is concerned with the implementation of insurance coverage for pollution compensation damage.
- Bureau of Customs is concerned with the control of importation of hazardous and toxic pollutants.
- Maritime Command, Philippine National Police has been deputized by the DILG to implement marine pollution laws and regulations.
- Air Transportation Office (ATO), Department of Transportation and Communications is tasked to report oil spills sighted by aircrafts. Bureau of Fisheries and Aquatic Resources, Department of Agriculture is tasked to implement laws against dynamite fishing and other illegal forms of fishing.

- Port State Control Officer, PCG is responsible for the implementation of international rules and regulations on marine pollution to foreign vessels entering RP ports.

5. Philippine Participation in Countering Global Marine Pollution

The Philippines, along with Malaysia and Indonesia, has formed a cooperative network for oil spill countermeasures in the Lombok/Makassar Straits and Sulawesi Sea to combat oil spill pollution in the areas mentioned. In order to further strengthen the plan, a Sulawesi Sea Oil Spill Response Network was subsequently established in Davao in 1985. The country is also one of the ASEAN nations which became a beneficiary of \$1.9 million worth of marine pollution equipment from Japan's Oil Spill Preparedness and Response (OSPAR) project. At the regional level, the Philippines is signatory to the ASEAN Oil Spill Response Action Plan (OSRAP) and ASCOPE plan for the control and mitigation of marine pollution.

6. International Conventions

The Philippines is one of the signatories to the International Convention for the Prevention of Pollution from Ships and to the Protocol relating to the Intervention on the High Seas in cases of Marine Pollution by substances other than oil. These documents were collectively known as MARPOL 73, and were signed in London on 02 November 1973 by Philippine representatives to include Mr Jaime Zobel de Ayala, Mr. Pablo A. Arague, Commodore Ernesto R. Ogoniar, Commissioner R.M. Lesaca, Mr. M.M. Manamala, Captain Jaime V. Francisco and Mrs. Sonia Zaide Pritchard. Mr. Arague chaired the Credential's Committee of said convention. MARPOL '73 was modified in 1978 and the modified instruments were called MARPOL 73/78. The 1978 Convention was held in London where the Protocol was signed on 17 February 1978.

The Philippines is also a member of the International Maritime Organization (IMO). The IMO which was founded in 1948 only became operational in 1958 after it was revitalized as the major United Nations Agency specializing in the field of shipping and the legal implications which flow from them. The basic principle of "Safe Ships and Clean Seas" explains IMO's aims. Its main committee called the Maritime Safety Committee, has

been successful in developing a large group of important marine conventions on safety, liability and pollution prevention and compensation, training, etc.

Other major International Conventions aside from MARPOL 73/78 for which the IMO is responsible, and which the Philippines has ratified are the following:

- The 1954 International Convention for the Prevention of Pollution of the Sea by Oil.
- The 1969 International Convention Relating to Intervention on the High Seas in cases of Oil Pollution Casualties.
- The 1969 International Convention on Civil Liability for Oil Pollution Damage.
- The 1971 International Convention for the Establishment of the International Fund for Oil Pollution Damage.
- International Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matters (London Dumping Convention of 1972 or LC 1972).

7. International Dimensions of the Ecological Issue

At this juncture and given the data above which indicate the Philippines serious stake in the environmental issue, it would be significant to consider the international dimension of the problem in order to appreciate better its enormity and how other countries are treating the issue.

As pointed out in the US Navy study on "The Environment and National Security: The US Navy's Capabilities and Requirements" prepared by the National Security Planning Associates (NSPA) in 1993, environmental challenges are deemed to have a transnational nature, such that regional and international cooperation, some of which could likely occur in the military realm, will be required for long-term solutions. In Europe, the areas of the Baltic, Arctic and Mediterranean Seas are the key maritime regions of environmental concerns which will require multinational attention. The study noted that NATO's Committee on the Challenges of a Modern Society (CCMS) has been involved in environmental issues since 1969, and a Special Working Group 12 of the Conference of National Armaments Directors (CNAD) is oriented specifically towards environmental problems confronting naval forces. Moreover, as ecological disorder is increasingly being associated to conflict and violence around the globe, it was noted that a growing number of authors assert that

large-scale environmental pressure is seriously affecting national security, and they view detrimental environmental changes as contributing to future conflicts that span the spectrum from war and terrorism to diplomatic and trade disputes. It was noted further that in announcing his support of the Bio-diversity Convention, President Clinton did not speak in terms of "domestic" environmental problems, but rather focused on the issue in "global" terms. In Europe, there is believed to be a residue of an antagonistic relationship between environmentalists and the military. Other observations of the European scene include the following:

- The military in Europe, especially in smaller countries such as Belgium and the Netherlands, appears to have accepted more readily that environmental objectives will be a part of their mission, helping them to keep up budgets and access to technological expertise.
- Scandinavians are highly conscious of environmental security, and their militaries play a key role in addressing environmental problems. Norway, for example, in its January 1993 Defense Statement announce the creation of a "green helmet" corps drawing on air, land and sea units.
- France, however, has had serious problems with environmentalists, most notably as regards the sinking of the Rainbow Warrior.
- Germany is, perhaps, sui generis in Europe, since it legally cannot project military power, has not experienced an antagonistic military/environmentalist relationship, and faces a massive closure and cleanup problem as a result of unification and the departure of the Soviet Army. [Ref. 7]

Meanwhile, the NATO experience in environmental issues has been extensively discussed in the same study. Its work is conducted in both the Committee on the Challenges of a Modern Society (CCMS), created in 1969 under the auspices of the NATO Science Committee, and the Conference of National Armaments Directors (CNAD), including Special Working Group 12, which is oriented specifically toward environmental problems confronting naval forces. CCMS has sponsored a wide range of studies addressing global environmental issues. Most recently, its efforts have focused on pollution prevention initiative in the armed forces and the environmental implications of military activities. In 1990, CCMS launched the Defense Environmental Expectations project aimed at cataloguing

the environmental requirements of each NATO country be aware of the environmental laws in any member nation that is hosting NATO troops. [Ref. 20]

It is further worth noting that an important new aspect of CCMS's environmental work has been the increased involvement of Central and East European scientists and experts, and activities with former Eastern Bloc nations, through the North Atlantic Cooperation Council (NACC). In November 1992, for example, CCMS sponsored a conference on military environmental issues for NACC countries that addressed such issues as making military maneuvers more ecologically sound and reducing CFCs in the armed forces. In the CNAD context, Special Working Group 12 has developed a major program of cooperation and outreach to examine critical issues, enhance information and documentation, harmonize requirements, pursue the cooperative development of technology, and promote concrete action to ensure maritime environmental protection. SWG 12 has worked closely with the NATO Industrial Advisory Group (NISG and the NACC.) [Ref. 20,21]

As clearly indicated in the same study, the international dimension of the environment/military nexus extends even beyond Europe. The problems in the former Soviet Union have already been mentioned. Because many environmental challenges are greatest in the developing world, there is also heightened interest in some third World militaries in environmental problems. General Eustace de Souza, formerly of the Indian Army and a former president of the World Wildlife Fund India, lists 20 countries where the military performs "green" tasks. These include Venezuela which is patrolling hunting, fishing and logging in the Amazon forests; India, which has created an environmental education center for the army and Great Indian Desert; and Vietnam, where the army is attempting to reforest areas defoliated by agent orange. This growing attention to environmental problems by military forces around the world should provide increased opportunities for cooperation. [Ref. 3]

The post-Cold War era has created a new context within which to examine the issue of the environment as a target of conflict. The NSPA study cited the international community's reaction to the actions of Saddam Hussein during the Gulf War who vowed that he would destroy Kuwait's oil producing capacity rather than relinquish it. The case of the

Gulf War is instructive both for what happened and the reaction it provoked. As expounded in the aforecited study, Saddam Hussein began to empty oil into the Gulf almost immediately after the air war commenced. Iraq was said to have dumped some 150,000 barrels of oil per day into the Gulf, creating a spill the equivalent in size of 25 to 40 Exxon Valdez disasters. The oil spill would have been worst incident of oil pollution had the well fires of Kuwait not overshadowed it. In setting Kuwaiti oil wells on fire, Iraq produced a cloud of smoke and a petroleum fog of some 1.3 million square miles. According to some experts at least, the impact of this action on the climate and overall environment was possibly responsible for the devastating typhoon that hit Bangladesh, catastrophic floods in China, and bizarre weather in the Middle East [Ref. 4, 5, 6, 22, 23]. The study pointed out that Saddam Hussein's actions provoked calls for strengthening the international regime against destruction of the environment in times of conflict. Several international agreements have been cited in this case -- The Hague Convention of 1907 defines a requirement that belligerents must limit themselves to those actions proportional to a proper military end, and it imposes on a state the obligation to protect real estate, forests, and agricultural estates. The Geneva Convention of 1949 proscribes damage to the component parts of the environment when not rendered absolutely necessary by military operations. Another Geneva Convention, agreed in 1977, prohibits "widespread, long-term and severe" damage to the environment. However, a specific problem with these conventions has been brought out which is that they provide no workable standard for a commander in the middle of an armed conflict. [Ref. 7]

The NSPA study likewise dealt on ecoterrorism with Saddam Hussein's actions during the Gulf war being contended to constitute this new form of conflict. Likewise, the bombing of the New York World Trade Center was cited as demonstrating the fragility and vulnerability of contemporary industrial society to such terrorist action. [Ref. 7]

Another convention relating to the environment is the convention on the Prohibition of Military Action or Any Other Hostile Use of Environmental Modification Techniques (the "ENMOD Convention") which prohibits the manipulation of natural processes as methods of warfare. In other words, one state cannot produce floods, tsunamis or earthquakes as a military instrument against another state with which it is at war. Again, a problem with this

particular convention was raised which is that the ENMOD Convention does not prohibit damage to the environment per se. A key issue at the 1992 Review Conference of the ENMOD Convention, an exercise sparked by Saddam Hussein's actions in the Gulf, was whether the Convention should move in this direction. An effort to transform the treaty through the reinterpretation into an environmental protection treaty was defeated. Yet, all nations who participated in the Review Conference recognized that the issue of the relationship between the environment and conflict and the legal regime governing it required considerably more attention. Since the Review Conference did not move in the direction of environmental protection, subsequent calls have been made for a treaty superseding ENMOD specifically to prohibit ecological destruction during wartime. [Ref. 7]

The NSPA study was quick to point out that the issue of the environment as a target of conflict and efforts to prohibit environmental damage in times of conflict through international agreements pose some potentially serious implications for military services, including the US Navy. Thus, the succeeding sections of this paper will show the US Navy experience. [Ref. 7]

8. The US Navy: A Case Study

The US Navy is presumably one of the first among the world's navies to take cognizance of the need to involve itself in environmental protection and monitoring tasks, in addition to its traditional role of defense. Therefore, this paper will cite the US Navy experience quite extensively, as basis for some of the author's conclusions and recommendations.

Based on the NSPA study, the US Navy has dramatically shifted its approach vis a vis environmental concerns. Deputy Assistant Secretary of the Navy (Environment and Safety) Elsie Munsell has been cited because of his reference to the "expanding environmental ethic" within the Navy, and for fiscal year 1994, the US Navy's request for environment-related funding increased by 17% in an overall Navy request that fell 10%.

The NSPA paper further outlined the areas that hold the greatest opportunity for positive action by the US Navy in response to the environmental challenges, compliance and clean up, and information sharing. Of significance is the Navy's known knowledge of its

operating environment which it sometimes uses to support environmental goals. For example:

- The Integrated Undersea Surveillance System (IUSS), a system designed to locate and track ships and submarines acoustically, has been used for several environmental purposes, such as tracking whales.
- Submarines have provided information on polar ice conditions, a key factor in determining global climate change.

Additionally, the NSPA study mentioned that scientists with security clearances are currently working with members of the intelligence community to determine what data can be made available to scientists and researchers that preserve the integrity of such information for military purposes while also taking advantage of their environmental uses. At the same time, the navy makes use of environmental information from other government agencies in support of both its environmental and military goals.

- Research and Development. The US Navy's current environmental R&D effort is focused on --the development of environmentally safe materials; the development of sensors to detect non-compliance situations as early as possible; understanding the global ecosystem, including, for example, the impact of hazardous materials such as pollutants in harbors; and remediation.

The NSPA study also cited several specific examples of environmental R&D activities by the Navy and proposes a number of further actions designed to strengthen the Navy's efforts:

- Establishing goals and setting priorities.
- Strengthening the link between environmental research programs and acquisition.
- Involving industry in meeting the navy's environmental goals.
- Working with National Laboratories.
- Making "multiple use" a standard approach to technological design and development.
- Using all available resources - creatively.
- Intensifying interservice cooperation. [Ref. 7]

In the course of the US Navy's performance of environmentally-related tasks, the NSPA study pondered upon a major question related to the role of the military in responding to environmental problems. While focus is made on the impact of the military's activities on

the environment, it was said that the range of concerns extend beyond the immediate problems of base closure and waste disposal to longer-term issues that touch the very core of the military as an institution. There is therefore a growing concern for pushing the military into assuming environmental tasks for which it may not be well suited. Still, the Navy is expected to respond to this issue with a coherent view of what it can and cannot do in addressing environmental problems in the security context.

III. THE PHILIPPINE NAVY'S PRESENT STRENGTHS/CAPABILITIES

A. PHILIPPINE NAVY'S DEFENSE OBJECTIVES AND STRATEGIES

To better appreciate the Philippine Navy's own defense objectives and strategies under the AFP's modernization plan, it would be helpful to premise the discussion with a brief on the overall defense objectives and strategies of the entire armed forces which are the primary considerations in the determination of the desirable naval force structure and equipment requirements under the modernization plan. [Ref. 24]

1. National Defense Objectives

- Uphold the sovereignty and defend the territorial integrity of the Philippines.
- Secure the border areas from smuggling, piracy, drug trafficking, poaching and other illegal activities.
- Assist in the protection of the country's national resources and ecological environment.
- Assist in national economic development, to include relief and rescue during disasters and calamities.
- Protect the 200-mile exclusive economic zone (EEZ) from illegal intrusions and exploitation of its resources.
- Support the DILG-PNP in the maintenance of peace and order and in internal security.
- Contribute to the stability of the ASEAN.
- Support regional and UN initiatives for stability, such as peacekeeping activities.
- Assist, as directed, in transnational border efforts with other countries, as in anti-piracy in the high seas, anti-marine pollution operations and search and rescue during maritime disasters.

In line with the above stated national defense objectives, the Philippine Navy adopted the following mission statement/functions and objectives:

2. Mission

The Philippine Navy is committed to provide naval defense, enforce maritime laws and regulations, conduct naval operations in support to ground and air forces, and assist the civilian government agencies in national government.

3. Functions

- Internal Defense - to prevent infiltration by sea, to support in internal security operations, to secure maritime activities and enforce laws at sea.
- National Development - to protect the country's maritime interest, to support national socio-economic development programs of government and to assist in rescue work during disasters and calamities at sea.
- External Defense - to maintain territorial integrity, interdict enemy seaborne forces and control vital and territorial sea areas.

4. Objectives

- Provide naval defense to the country.
- Protect the internal sea lanes of communications, strategic waterways and choke points.
- Secure the border areas from lawless elements.
- Protect the EEZ.
- Assist in the protection of the country's marine resources. Assist in the economic development efforts of the national government.

5. Naval Strategy

The Philippine Navy, in its modernization plan, recognized that: there are two potential flashpoints which could possibly involve the Philippines -- the Korean conflict and the Spratly Islands -- and that a major invasion of the country emanating from outside is remote but that the threat to the nation's EEZ from intrusion and illegal exploitation will increase. [Ref. 25] Then FOIC Vice Admiral Dumancas, in his briefing during which the plan was officially presented, said that the problem of overlapping EEZs particularly in the west may reach crisis proportions before it is resolved. On the other hand, piracy, intrusions, infiltration, smuggling and other forms of lawlessness at sea will continue. Basically, the navy is guided by the overall Armed Forces of the Philippines military strategy of deterrence and defense-in-depth, adopting the maritime strategy of selective sea control along this line. It was envisioned that during peacetime and even during crisis situations, sea control, albeit limited in nature and scope, will enable the navy to deter other nations from exploiting and illegally using rich Philippine marine resources; ensure the unhampered and safe use by commercial ships of the country's traditional local shipping routes, ensure the safe and

innocent passage of foreign vessels in choke points and archipelagic sea lanes (in consonance with agreements under UNCLOS); deny the use of the sea by enemies of the state for inimical activities; ensure the preservation of the marine areas for the enjoyment of every Filipino citizen and secure Philippine borders from intrusions. Presently, the navy's vessels are among the oldest, averaging 46 years of existence.

6. The Philippine Navy's Present Strength

Based on the 1994 inventory of naval forces, the Philippine Navy has a total of 200 boats/ships and aircraft, broken down as follows: 93 coastal patrol boats; 11 patrol ships; 15 maritime aircraft; 49 amphibian vehicles; 10 transport ships; 15 auxiliary ships and boats; and 6 coast guard ships and boats. Under the modernization plan, the navy is projected to acquire additional 115 boats/ships and aircraft for a period of 15 years and to upgrade some 19 patrol boats, 5 patrol ships, 5 transport ships, 2 auxiliary ships and 25 marine vehicles. The upgrading will extend the serviceability of existing naval ships and thus ensure the Navy's capability to project its presence in maritime areas while the acquisition of new equipment is in the process. At the same time, this will prepare naval personnel in the operations and maintenance of new and modern vessels that will be procured. Also included are the installation of simple fire control systems, weapons systems rehabilitation, engine repowering and improvement of habitability.

7. PN's Capability Requirements

To secure the entire territorial seas and archipelagic waters as well as the 200-mile EEZ and protect the marine resources of the Philippines, the navy would require the following:

- 74 small craft, 44 of which will be utilized in implementing maritime laws; one small craft for every coast guard station nationwide except for Manila and Cebu which will get two each.
- 21 patrol gunboats intended to effectively protect and preserve marine environment and deter lawlessness in the seas. These vessels will also be deployed along the strategic waterways and checkpoints to intercept vessels violating the laws of the country and in some offshore areas.

- 15 offshore patrol ships and 4 fixed-wing maritime patrol aircraft to be deployed in the offshore areas. They will be deployed to enforce the sovereign rights of exploring, exploiting, conserving and managing the marine resources.

At the same time, however, the navy admitted that its present capability includes vessels and craft that are outmoded. It said that its capability for naval defense is very limited while its capability to protect the maritime area is inadequate. Specifically, its coastal and offshore patrol capability is inadequate to run after lawless elements at sea, primarily due to the obsolescence of its ships and other naval armaments, equipment and facilities. The navy does hope to embark on several activities as part of its modernization plan, to address these inadequacies such as the upgrading of its equipment; bases development; equipment acquisition and streamlining of its organization.

8. Organization

Along with the capability development, the Philippine Navy is envisioning to streamline its organization. It will dissolve all naval districts which will be replaced with four Naval Forces; the Naval Support Command will be renamed Naval Sea Systems Command to put more emphasis on support for naval ships and craft; the Naval Communications-Electronics Facilities will be separated from the Command and merged with the Philippine Navy Computer Center to form the Naval Communications, Electronics and Information Systems Center. The Philippine Coast Guard (PCG) and the Philippine Marines (PM) will also undergo restructuring. While the PCG will retain its eight districts, its support units will be reduced from six to five in 1995. The PM will gradually be reduced from three brigades with 10 battalions to two brigades and 6 battalions. The four Naval Operating Bases will be upgraded into special units directly under the control of the FOIC, PN by the year 2002.

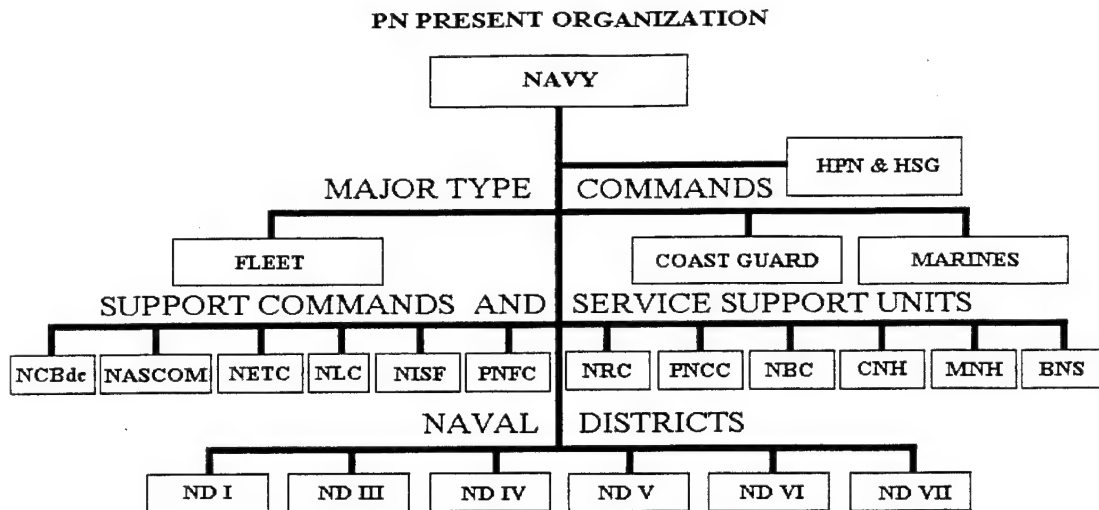


Figure 2. Present Organization

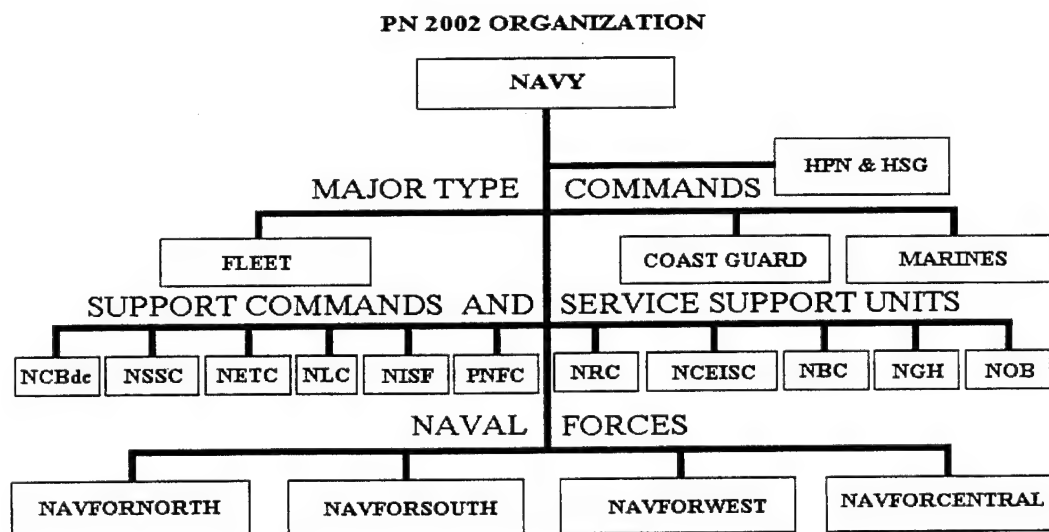


Figure 3. Future (2002) Organization

TYPE	R P C	T A I W A N	V I E T N A M	J A P A N	R P	T H A I L A N D	R I	M A L A Y S I A	S I N G A P O R E	B R U N E I
Submarine (M)	7 2*									
Submarine (Patrol)	43 2*	4 16*		15 4*			2			
Destroyer (M)	17 2*	24		39 10*						
Frigate (M)	31 3*	16*	2	18 2*		4 2*	12 19*			
Frigate (G)	5	10	5		1	5	5	2		
Corvette (M)								2 2*	6	2*
Corvette (G)		3	2		9			2		
FAC (M)	215 3*	52	8	2*		5	4	8	6	3*
FAC (G)	370 10*					3		6	6	
FAC (Torpedo)	150		21							
FAC (Patrol)	83		11	2						
Gunboat	12		11		8	21	12	21 6*		
Ocean Minesweeper	41			6*			2			
Coastal Minesweeper/Layer	94	26 8*	13	37 8*		12	4 10*	4	1 4*	
Average Age					46	25	24	20	16	14

* Under Construction/Acquisition

Table 7. Inventory of Asean Navies

B. THE ROLE OF THE PHILIPPINE COAST GUARD IN MARPOL

By virtue of PD 600, PD 601, and PD 602, the Philippine Coast Guard was given the responsibility for the control of marine pollution. Even after the enactment of RA 3931 which created the National Pollution Control Commission (NPCC) and the issuance of PD 979 or the Marine Pollution Decree of 1976, the PCG continued to share the responsibility of marine environmental protection with the NPCC.

Under PD 600, it becomes a national policy to prevent and control pollution in areas within the territorial jurisdiction of the Philippines. Along with PD 979, PD 600 empowered the PCG to subscribe, promulgate and enforce rules and regulations for the prevention and control of marine pollution. PD 602 created the National Operations Center for Oil Pollution (NOCOP) which was assigned to the PCG.

To implement the marine pollution functions, the PCG has designated a specific staff for the purpose called the Office of the Coast Guard Staff for Environmental Protection or CG-9 and which operationalized the NOCOP. Under this office are the Marine Environmental Protection Offices (MEPO) and its eight (8) Districts.

1. The Office Of Marine Environmental Protection, CG-9

O/CG-9's mission is to assist the Commandant, Philippine Coast Guard in providing marine environmental protection thru pollution control and development of fishing laws. Its functions are the following:

- Formulate policies and procedures for the efficient implementation of the Command's Marine Environmental Protection Program.
- Monitor activities of Coast Guard units relative to enforcement of MARPOL rules and regulations and RP fishery laws.
- Maintain liaison with foreign and local agencies concerned with the enhancement and promotion of marine resource conservation.
- Conduct research and prepare position papers on marine environmental protection.

O/CG-9 is headed by a Commander (0-5) and assisted by a Lieutenant Commander (0-4). The present staff is made up of three (3) other officers, eight (8) enlisted men and six (6) civilian employees.

2. National Operations Center for Oil Pollution (NOCOP)

By virtue of PD 602, the National Operations Center for Oil Pollution (NOCOP) was established at Headquarters, PCG. Aside from direct negotiations and call for assistance from local government and private entities with regard to marine pollution, NOCOP is also the point of contact with similar national operations center in the ASEAN region.

The mission of NOCOP is to prevent and mitigate pollution of the seas, rivers, and tributaries within the territorial jurisdiction of the Philippines caused by dumping of waste matters, spilling of oil and other noxious substances which are hazardous to human health, harmful to marine life and resources, and could damage amenities or interfere with their effective utilization. NOCOP's functions are the following:

- Enforce existing PCG-promulgated rules and regulations pertaining to MARPOL.
- Conduct individual and team training in marine environmental protection and oil spill response combating.
- Perform essential laboratory analysis for identification and measurement of maritime pollutants.
- Maintain and operate oil spill response equipment and facilities.
- Prepare national and local oil spill contingency plan.
- Provide trained personnel for the CG District's Marine Environment Protection Offices (MEPO).

The NOCOP is composed of seven (7) functional sections, namely, Marine Environmental Protection Affairs, Training, Intelligence and Security, Technical Research, Laboratory, Inter - Agency Affairs, and Project Review. It also maintains the Davao Response and Training Center.

The NOCOP is being manned by seven (7) officers, sixty seven (67) enlisted personnel and thirty one (31) civilian employees.

3. PCG's Implementation Policies on Marine Pollution

Pursuant to the Presidential Decree and other laws on marine pollution, the Philippine Coast Guard issued a series of Memorandum Circulars for guidance and implementation of maritime vessels. The more salient of these Memorandum Circulars are as follows:

- Memo Circular 02-77 dated 20 May 1977, Subject: Rules and Regulations for Prevention, Containment, Abatement and Control of Marine Pollution.

This Memo Circular applies to all sources of marine pollution in all bodies of water within the territorial jurisdiction of the Philippines, including ports, harbors, coastlines, lakes, rivers and their tributaries. It prohibits the discharging, dumping or depositing of oil, oily mixture and tank washings including ballast water from any vessel, ship or barge or other craft into the territorial and navigable waters of the Philippines. Likewise, it prohibits the discharge, deposit or throwing of any kind or from sewers into the sea or any navigable waters or tributaries, or to the banks thereof. Penalties for dumping oil or oily mixture is from P500 to P1,000 on the first offense; P3,000 to P5,000 for the second offense; and P5,000 to P10,000 for the third offense. For dumping hazardous or noxious substances, the penalties range from P5,000 to P10,000; and for dumping or throwing any refuse matter, P200 to P5,000.

- Memo Circular 02-80 dated 7 November 1980, Subject: Accreditation of oil water separators, oil containment, Recovery and Dispersal Equipment, and Chemical Dispersants.

This Memo Circular prescribed the procedures and corresponding fees for accreditation of chemical dispersants, oil containment, recovery and dispersal equipment and oil separation as well as provide penalties thereof; and for insuring that all water separators are to be installed on board vessels of 1,000 gross tons and above and in oil terminals. Chemical dispersants to be provided on board vessels, in oil refineries and depots, and oil containment, recovery and dispersal equipment to be provided in oil refineries and major oil-loading ports shall meet the standard requirements set by the Philippine Coast Guard.

- Memo Circular 01-81 dated 1 February 1981, Subject: Rules and Regulations on Monitoring Procedures for SOLAS and Maritime Environmental Protection Requirements for Domestic Vessels.

4. Establishment of a Task Force on Environmental Protection

Executive Order #117 dated August 11, 1993 and signed by President Fidel V Ramos established an interagency task force for coastal environmental protection or IATFCEP, based on Section 2, Article 12 of the Philippine Constitution which provides for the protection of the nation's marine wealth in its archipelagic waters, territorial sea and exclusive economic zone. It cited the successful implementation by the Philippine Navy of TF Sagip Yaman in Davao for the protection of the marine and aquatic resources of the province, a project that was expanded on a larger scale to promote a national awareness on the priority of environmental concerns and insure a more effective and sustained law enforcement on environmental areas nationwide.

The IATFCEP is composed of the following members: the Executive Secretary, the secretaries of National Defense, Interior and Local Government, Agriculture, Environment and Natural Resources and Justice; the FOIC and the Director General of the Philippine National Police. The DND and the Philippine Navy have been initially designated as the lead agencies until such time that the DILG and the PNP will have acquired the capability to take over.

Meanwhile, there were 22 protected/priority areas that have been identified by the interagency task force for monitoring and control purposes:

- Sual-Alaminos-Bolinao in Pangasinan.
- Palaui Island, Sta Ana, Cagayan.
- Bani Pt., Masinloc, Zambales.
- Apo Reef, Occidental Mindoro.
- Cuyo Island Group, Palawan.
- Taytay Bay, Palawan.
- Ulugan Bay, Palawan.
- Quinalasag Island Group, Camarines Norte.
- Sorsogon Bay, Sorsogon.
- Sapi Bay, Capiz.
- Carbin Reef, Sagay, Negros Occidental.

- Apo Island, Negros Oriental.
- Bindoy Reef, Negros Oriental.
- Mahanay Island, Talibon, Bohol.
- Olango Island, Cebu.
- Guiuan Island, Samar.
- Initao, Misamis Oriental.
- Murcielagos Bay, Misamis Oriental.
- Sarangani Bay, South Cotabato
- Pujada Bay, Davao Oriental.
- Marungas Island Group, Sulu.
- Quezon province's coastal waters.
- Others as may be designated later.

The task force was charged with the responsibilities of formulating policies and promulgating guidelines for the effective enforcement of environmental protection laws at the local, regional and national levels; to enter into Memoranda of Agreement between the lead agencies and the member agencies of the task force as well as with other government units; to coordinate, monitor and evaluate coastal environmental protection programs and development projects; undertake information dissemination and education campaigns on coastal environmental protection; and to recommend the passage or revisions of laws on environmental protection.

5. Findings of the Philippine Environmental and Natural Resources

Accounting Project-phase II

In its report dated July 12, 1994, the Philippine Environmental and Natural Resources Accounting Project Phase II (ENRAP II), a project of the DENR with financial support from the USAID, revealed that the cost of water pollution control is considerably higher than the cost of controlling air pollution. Waste disposal services for water, at a cost of P14.3 million (Table 3:1988 figures) are more valuable to society as a whole than those in air (at a cost of P3.3 million for the same year). Correspondingly, the attendant costs of reducing water pollution would be considerably larger compared to air pollution reduction.

ENRAP II likewise observed that damage from water pollution is more substantial than damage from air pollution. Specifically, off-site damages caused by water pollution, amounting to P2.4 billion, and result in foregone productivity of fishery, hydropower and agricultural systems.

C. IMPACT OF UNCLOS AGREEMENTS

To better understand the impact of UNCLOS on the Philippines, let us consider a paper prepared by Merlin Magalona, [Ref. 24] the Filipino representative to the UNCLOS Convention. In the said document, he stressed the following:

- The territorial limits of the Philippines and for that matter, the political boundaries are principally defined by Article III of the Treaty of Paris concluded between Spain and the United States on December 10, 1898. It is declared in this provision that "Spain cedes to the United States the archipelago known as the Philippine Islands, and comprehending the islands lying within the line", which is drawn in the technical description of metes and bounds under that Article: Taking into account the unity of land and water that inheres in the concept of archipelago, the territory ceded did not consist only of dry islands but the waters as well as circumscribed by the technical description.
- Article I of the Philippine Constitution of 1935 conveyed the clear idea of a political boundary when it provides that "The Philippines comprises all the territory (thus ceded) to the United States ... the limits of which are set forth in Article III of said territory..."

He assured in the paper that the "Philippine archipelago" in the territorial definition of both the 1973 and the 1987 Constitutions is the same territory described in Article III of the Treaty of Paris, taking the technical description of that provision in the concept of territorial boundaries.

Moreover - Magalona said that the vast expanse of waters within the Treaty of Paris boundaries is spelled out by the Committee on National Territory of the 1971 Constitutional Convention in its Report No. 01 as follows:

Now if we plot on a map the boundaries of this archipelago as set forth in the Treaty of Paris, a huge or giant rectangle will emerge, measuring about 600 miles in width and over 12000 miles in length. Inside this rectangle are the 7,100 islands comprising the Philippine islands. From the east coast of Luzon to the eastern boundary of this huge rectangle in the Pacific Ocean, there is a distance

of over 300 miles. From the west coast of Luzon to the western boundary of this giant rectangle in the China Sea, there is a distance of over 150 miles. [Ref. 26]

It is significant to have an overview of the country's maritime dimensions as indicated in the paper of Magalona, because it is the status of these waters which have been radically revised resulting in what he termed as the degradation of the Philippines' territorial integrity as a State. In response to a communication from the UN Secretary General, the Permanent Mission of the Philippines to the United Nations sent a note verbale which in part reads:

All other water areas embraced within the lines described in the Treaty of Paris of 10 December 1898, the Treaty concluded at the Washington, D.C. between the United States and Spain on 7 November 1900, the Agreement between the United States and the United Kingdom of 2 January 1930, and the Convention of 6 July 1932 between the United States and Great Britain... are considered maritime territorial waters of the Philippines.... [Ref. 27]

The Philippines maintained the same position in representation to various states as well as in legal forums in the United Nations, in particular with respect to the issues on the high seas, the territorial sea, and the sea-bed and ocean floor beyond national jurisdiction. It reiterated this stand in the 1958 and 1960 UN Conferences of the Law of the Sea. The status of the country's territorial sea as extending up to the limits set in Article III of the Treaty of Paris is taken by the Philippine Navy as the basic guideline in the enforcement of Philippine laws.

Apparently because of the vast area of territorial sea within the treaty limits, the Philippines made the following clarification in the same note verbale to the UN Secretary General:

The Philippine Government considers the limitation of its territorial sea as referring to those waters within the recognized treaty limits, and for this reason it takes the view that the breadth of the territorial sea may extend beyond twelve miles. It may therefore be necessary to make exceptions, upon historical grounds, by means of treaties or Conventions between States.... [Ref. 27]

Later, in Republic Act No. 6046, this definition of national territory found legislative enactment. This law provides that the territorial sea of the Philippines extends up to the treaty limits. Significantly, however, the US does not take the Treaty of Paris as establishing the political boundary of the Philippine State. In a statement of protest against the Declaration which the Philippines made upon ratification of the UNCLOS, the United States declared that neither treaties nor practice "has conferred upon the United States, nor upon the Republic of the Philippines as successor to the United States, greater rights in the waters surrounding the Philippine Islands than are otherwise recognized in customary international law." To the United States then, the territorial definition of Philippine Archipelago is subject to general rules of international law, and not to special treaty regime (i.e. the Treaty of Paris).

Article II of the Convention leaves no doubt that the lines it defines are boundary lines. It provides:

....It is agreed that if more accurate surveying and mapping of North Borneo, the Philippine Islands, and intervening islands shall in the future show that the line described above does not pass between Little Bakkungaan Islands, substantially as indicated on Chart No. 4720, the boundary line shall be understood to be defined in that area as a line passing between Little Bakkungaan and Great Bakkungaan Islands as indicated on the chart.[Ref 28]

It is likewise agreed that if more accurate surveying and mapping shall show that the line described above does not pass between Mangsee islands and Mangsee Great Reef as indicated on Chart No. 4720, the boundary shall be understood to be defined in that area as a straight line drawn passing through Mangsee. Channel as indicated on attached Chart No. 4720.... [Ref. 28]

As pointed out above, Republic Act No. 3046, the present law defines the baselines of the country's territorial sea, provides that "all waters within the Treaty Limits have always been regarded as part of the territory of the Philippine Islands." It deserves emphasis to note that this definition of territories is a reiteration of the Fisheries Act of 1932 which stated that the territorial sea of the Philippines extended to the Treaty Limits. The Act was passed by the

Philippine Legislature and signed into law by the American Governor-General -- at the time when the Philippines was yet under US sovereignty.

As a sphere of jurisdiction and as a line of territorial integrity, "boundary" is defined in international law as a line "which determines the limit of the territorial sphere of jurisdiction of States or other entities having an international status." Necessary, boundaries "are permanent lines of de jure jurisdiction."

If it is argued, as does the US government, that the limits set forth in the Treaty of Paris are not boundaries but represent "lines of allocation for the islands only and do not necessarily include the waters within," then they can be movable without any legal consequence in the change, and there is no sense in fixing those lines, by waters and bounds as Article III of that Treaty does.

On 10 December 1982, the Philippines signed the UN Convention on the Law of the Sea. On 8 May 1984, it ratified the Convention. Curiously enough, when the UNCLOS becomes effective, its implementation will have the effect of nullifying the legal status or function of the treaty limits set forth principally in the Treaty as definition of the country's political boundaries, to the same extent that the US position deprives these treaty limits of the same function. In particular, as discussed below, the operation of Articles 47 and 48 of the UNCLOS, in relation to its Article 3 will eliminate in a wholesome manner the juridical nature of the Philippine treaty limits as the territorial definition of the Philippine State.

Under the legal regime of the UNCLOS, the Philippines falls within the definition of an "Archipelagic State", and hence the breadth of its territorial sea under Article 47 and 48 shall be drawn from the "archipelagic baselines", i.e. straight lines surrounding the Philippine Archipelago, connecting "the outermost points of the outermost islands and drying reefs of the archipelago ." It is from these archipelagic baselines that the territorial sea is measured. Since, under Article 3, the width of the territorial sea is limited to 12 nautical miles, this means that accordingly the territorial sovereignty of the Philippine State cannot exceed 12 nautical miles seaward from the archipelagic baselines.

It would be useful to see what is left of the country's political boundaries as provided in the Treaty of Paris in the larger context of the maritime zones under the UNCLOS. These

maritime zones are the territorial sea, the earthquake zone, the exclusive economic zone, and the high seas. From its archipelagic baselines drawn around the Philippines, a territorial sea of not exceeding 12 nautical miles will pertain to it as a zone of sovereignty subject to the right passage. From the outer limit of each territorial sea, it may draw its contiguous zone 12 nautical miles wide. Finally, the Philippines is entitled to have an exclusive economic zone which shall not exceed 200 nautical miles from its archipelagic baselines. The waters beyond these zones form part of the high seas.

While the sovereignty of a coastal state extends beyond its land territory and internal waters to its territorial sea in the contiguous zone it has only jurisdictional rights to the extent necessary to enforce its custom, revenue, immigration or sanitary laws. It is true that within its exclusive economic zone (EEZ), the Philippines has extensive rights to explore, exploit, conserve and manage natural resources, other states retain the freedoms of navigation, overflight and the laying of pipelines. The EEZ is subject to the rule that no state may subject any part of this zone to its sovereignty.

Recalling the report of the Committee on National Territory of the 1971 Constitutional Convention in the country's archipelagic "giant rectangle:"

From the east coast of Luzon to the eastern boundary of this huge rectangle in the Pacific Ocean [as indicated in the Treaty of Paris], there is a distance of over 300 miles. From the west coast of Luzon to the western boundary [as established by the Treaty of Paris] of this giant rectangle in one China Sea, there is a distance of over 150 miles. [Ref. 26]

All around, the average breadth of the territorial sea between the baselines and the treaty limits is 100 to 110 nautical miles. If these vast distances in the "giant rectangle," which are all territorial sea under Republic Act No. 3046, are subjected to the legal regimes of the UNCLOS maritime zones outlined above, they will be accordingly compartmentalized into territorial sea, contiguous zone, and exclusive zone, and the high seas some parts. Obviously, the territorial sovereignty of the Philippines identified with the territorial sea, suffers an eclipse.

If the limits set forth in the Treaty of Paris are understood in the concept of political boundaries, to be applied in complement with Republic Act No. 3046, it is calculated that the area of the country's territorial sea covers about 520,700 square miles. As a result of the UNCLOS effects, one estimate places the reduction of territorial sea by 230,000 square miles, or almost by 50 percent.

In defining national territory, the Philippines Constitution of 1987 specifies that :

The waters around, between and connecting the Islands of the archipelago, regardless of breadth and dimensions, form part of the internal waters of the Philippines. [Ref 29]

This provision runs in continuity with the territorial principles of past Constitutional regimes. In a position communicated to the United Nations in 1955, the Philippines emphasized the legal status of these waters, as follows:

The position of the Philippine Government in the matter is that all waters around, between and connecting the different islands belonging to the Philippine archipelago irrespective of their width and dimensions, are necessary appurtenances of its land territory, forming all integral part of the national and inland waters, subject to the exclusive sovereignty of the Philippines... [Ref. 27]

All the more is the sovereignty over these waters vital as a political consolidation of a State whose material base is characterized by geographic fragmentation.

Waters properly characterized as "national waters" or "Internal waters", are closely linked to land territory by reason of the "vital interests of the territorial sovereign concerning conditions of national and territorial integrity; of defense, of commerce and of industry." International law strikes a difference between territorial sea and internal waters in that it permits right of innocent passage by foreign ships in the former, but not through internal waters. It is only upon prior permission of the coastal State concerned that submarine cables or pipelines may be laid in internal waters. Moreover, in customary international law there does not exist a ... right of access to internal waters in general or to ports in particular, except in cases of distress.

Warships and government ships operated for non-commercial purposes may not enter the internal waters of a state without its prior consent. A coastal State may allow entry to internal waters and to its ports upon certain conditions, which right maybe withdrawn.

On the other hand, the UNCLOS will radically change the status of the Philippines internal waters, in the first place transforming them into archipelagic waters. Under the UNCLOS, what the 1987 Constitution refers to as “waters around, between and connecting the islands of the archipelago” are said to be subject to the sovereignty of the Philippines as an Archipelagic state, but that sovereignty is watered down by the following conditions and limitations:

- Ships of all states enjoy the right of innocent passage through archipelagic waters. This means that as a matter of right foreign ships are allowed to navigate through the Philippine waters “around, between and connecting the islands of the archipelago,” including stopping and anchoring incidental to ordinary navigation. In direct danger and risk to national security, this right pertains to foreign submarines and “nuclear-powered ships and ships carrying nuclear or other inherently dangerous or noxious substances.” In making provision for the innocent passage of submarines and nuclear ships, the UNCLOS does not expressly exclude those which are nuclear-armed. The UNCLOS contains rules regulating the right of innocent passage for warships, clarifying all the more that this right pertains to this category of ships. The UNCLOS easily lends itself to the interpretations that the rules for innocent passage of submarines and warships apply to archipelagic waters, or in other words, to waters around, between and connecting the islands of the Philippines archipelago. Since major shipping routes traverse Philippine territory, it may be assumed that oil tankers, fraught with potential environmental crisis through marine pollution, are among the beneficiaries of innocent passage through these waters.
- In archipelagic waters, the Philippine has the duty to “recognize traditional fishing rights and other legitimate activities of the immediately neighboring States,” if there are any.
- The Philippine must “respect existing submarine cables laid by other States and passing through its waters without making a land fall” and shall allow maintenance and replacement of such cables upon receiving due notice of their location and the intention to repair or replace them. [Ref. 24]

Under the UNCLOS, the vast expanse of internal waters over which the Philippines has full territorial sovereignty are radically reduced to small pockets of waters enclosed by straight lines drawn across the mouth of the rivers directly flowing into the sea, in bays and in permanent harbor works, including lagoons inside reef, if any.

In the real sense, what are real properly internal waters under our fundamental law will cease to be part of the country's territorial sovereignty by virtue of these serious restrictions. In brief, UNCLOS has the effect of eliminating in a wholesale manner these internal waters as integral part of Philippine sovereignty.

The UNCLOS presents an anomaly in relation to the Philippines, in that it gives a new status to Philippine internal waters, calling it by the new name "archipelagic waters", and subject it more restrictions than it does to the territorial sea. Consequently, the territorial sea surrounds a regime of waters inside the country's baselines burdened with more onerous duties on the part of the Philippines than the territorial sea. The view of Churchill and Lowe is of striking relevance to marine pollution from ships in their innocent passage through waters interconnecting the Philippine Islands:

... the Convention in its provisions on pollution gives the coastal state additional enforcement jurisdiction in respect of pollution over foreign vessels in its territorial sea... this additional jurisdiction does not apply in archipelagic waters. The result, therefore, is that in its archipelagic waters an archipelagic state has less enforcement jurisdiction over foreign vessels in matters of pollution than a non-archipelagic state in its territorial sea ... or than the archipelagic state itself has its own territorial sea lying beyond its archipelagic waters. [Ref. 31]

It is through the archipelagic sea lanes that the UNCLOS has the most devastating impact on Philippine sovereignty. In addition to the right of innocent passage of foreign vessels through the territorial sea and the archipelagic waters of archipelagic states, the UNCLOS creates a new maritime upon the demand of the United States and other naval powers, namely, the archipelagic sea-lane passage. The central feature of this new regime is the duty of the archipelagic states like the Philippines to designate sea lanes and air routes "suitable for the continuous and expeditious passage of foreign ships and aircraft through or over" the archipelagic waters and, the adjacent territorial sea. Jawawardens interprets the UNCLOS as requiring that each archipelagic sea lane be 50 nautical miles wide, which to me could be an underestimation. Each archipelagic sea lane is at traverse the archipelagic waters and the territorial sea in order to create "continuous, expeditious and unobstructed transit between one part of the high seas or an exclusive economic

zone” The right of an archipelagic sea lanes passage consists of two components, namely: (1) the right of passage of all ships, and (2) the right of overflight of all aircraft. Both components pertain to all States and the archipelagic state cannot “discriminate in form or in fact among foreign ships,” which should apply as well to foreign aircraft. It shall not hamper nor suspend the archipelagic sea lanes passage.

Archipelagic sea lanes are limited are indeed in the nature of international highways cutting across the territory of an archipelagic state, excluded from the exercise of its sovereign powers, so that foreign ships and aircraft, in particular those of the US and other naval powers, can maintain their freedom of worldwide mobility. The proceedings of the Third UN Conference on the Law of the Sea, which prepared the UNCLOS, reveal that the special character of the archipelagic sea lanes passage lies primarily in the military-security demands of the US., which were accepted by the Conference in the exchange of compromises and concessions.

From the viewpoint of the US, “national security” interests--particularly interests associated with military functions -- have been predominant in the development of U.S. policy toward a comprehensive treaty on the Law of the Sea. “Against the apparent trend towards the territorialization of the oceans, i.e., the expanding jurisdictional claims of coastal states seaward, the US government has repeatedly declared that it will exercise and assert its navigation and overflight rights and freedoms on a worldwide basis”, emphasizing that “Unimpeded commercial and military navigation and overflight are critical to the national interest of the United States.”

One major result of these comprises and concessions is synthesized by Judge Shigeru Oda of the International Court of Justice, as follows:

...the new regime on the passage through state and archipelagic waters was introduced not only for the navigation of commercial vessels but in particular, to maintain uninterrupted navigation of warships -- including submarines and the free navigation of military aircraft. [Ref. 32]

In the early 1970s, the United States declared that it would accept the 12-mile territorial sea limit on certain conditions, among others that the free and uninterrupted passage for warships and military aircraft and submarines through straits used for international navigation be

guaranteed. This was a basic point of the new regime of transit passage through straits. The idea of the archipelagic sea lane passage developed in a similar fashion.

Even this development (i.e., the proposal to define innocent passage of vessels in the in the archipelagic waters, sponsored principally by the Philippines and Indonesia) was unacceptable to the US Navy, because under the innocent passage concept its submarines would not be able to carry out underwater operations. The U.S. Navy would only accept the archipelagic concept on the condition that the undetected and uninterrupted passage of submarines would be guaranteed throughout the archipelagic waters. thus, the concept of archipelagic sea lanes passage was first introduced to permit naval vessels including submarines and military aircraft to enjoy a free and uninterrupted passage through the archipelagic waters. Article 53 (1) and (2) of the UNCLOS now provides for "All ships and aircraft enjoy the right of archipelagic sea lanes passage in such sea lanes and air routes," which archipelagic states are under duty to designate.

Kwiatkowska has a more concrete explanation as to the military-security motivation of the right of archipelagic sea lanes passage.

The right of innocent passage would be perfectly adequate for commercial navigation and non-applicability of this right never hindered civil aviation. But archipelagic sea lane passage was necessary to enable a submerged navigation of submarines and maneuvering of military aircraft which are not permissible under the innocent passage regime. [Ref. 33]

As to submarines, an anomaly in the UNCLOS arises from the fact that it requires submarines "to navigate on the surface" in the territorial sea, whereas in transit through the archipelagic sea lanes they are allowed passage in their submerged state, or "in the normal mode." It can be generalized then that:

The essential feature of archipelagic sea lanes passage is that the United States, the possibly Soviet Union, Britain, France, and SSBNs [nuclear ballistic missile submarines] others may send or attack submarines through archipelagic waters in their normal mode of operation. This right of archipelagic sea-lanes passage is especially important (to such naval power) in the Southwest Pacific

archipelagos of the Philippines and Indonesia for east-west transit to and from the Indian ocean. [Ref. 34]

As to overflight over the archipelagic sea lanes, Kwiatowaka further explains the peculiar military nature of this right, thus:

The requirement that the air routes must be above archipelagic sea lanes was dictated not by need of civil air navigation but by the necessity to provide maneuvering possibilities for military aircraft while the naval forces of a particular fleet are passing through the sea lanes... [Ref. 34]

It follows from the foregoing that, contrary to what is often maintained, a general right of free overflight above archipelagic waters can -- due its strict application to the air space above the archipelagic sea lanes -- be implemented in practice only by military aircraft. Civil aircraft could clearly not fulfill the condition of zigzagging above the archipelagic sea lanes and of overflying archipelagic waters without passing above archipelagic land (island) territory. In brief, the right of passage through archipelagic sea lanes is specially designed for aircraft carriers. Hence, the complementation of the right of passage for ships with the right of overflight for aircraft.

This security concern over the archipelagic sea lanes passage is qualitatively magnified because of the expansion of sea-based nuclear weapons systems. As a United Nations study shows:

The sea has now become the operational environment of ballistic missile submarines, each of which has been estimated to be carrying the equivalent of more explosive power than was used by all the combatants in the Second World War. The combination of missile and warhead design, nuclear propulsion power, highly accurate navigation and guidance systems and sophisticated hull design and construction techniques has provided the opportunity for the development of an entirely new naval capability of awesome specific power. [Ref. 35]

Until lately, a great percentage of the ICBMs is sea-borne and more than 7,000 strategic nuclear warheads are carried by submarines of the five nuclear-weapon states. And yet with respect to passage through the archipelagic sea lanes, the UNCLOS does not require prior authorization -- or even just notification -- for the passage of submarines or warships carrying nuclear weapons or other dangerous or noxious cargoes.

In this context, a more specific situation emerges in the case of the Philippines. Under Article 53 (94) of the UNCLOS the archipelagic sea lanes, together with the air routes for overflight, "shall include all normal passage routes used as routes for international navigation." It is to be noted that under the UNCLOS if the Philippine fails to designate sea lanes or air routes, the right of archipelagic sea lanes may be exercised through these normal routes of international navigation. Taking into account existing normal routes for international navigation, how many archipelagic sea lanes may traverse the Philippine archipelago? On this basis, at least four of such "international highways" each more than 50 nautical miles wide, are likely to cut across its territory. Between the Pacific Ocean and the South China Sea, the first route passes through Luzon Strait (which consists of the Bashi, Balintang and Babuyan Channels) in Batanes. The second goes through San Bernardo Strait and Verde Island Passage. The third, though Surigao Strait, connects the Pacific Ocean with Mindanao and Sulu Seas from which ships may go out into the South China Sea through the Balabac Strait in southern Palawan. Passing through Mindoro Strait, the fourth route connects the South China Sea with Celebes Sea through Basilan Strait. The other branch of this fourth route goes out through Balabac Strait into the Indonesian route and on to Singapore Strait or Malacca Strait.

It must be borne in mind that in the Philippines case, these archipelagic sea lanes are drawn across what the Philippine Constitution characterizes as internal waters which form part of Philippine territorial sovereignty.

Among the Straits used for International navigation which are considered of strategic importance, eight are situated entirely within the archipelagic waters of the Philippines, or what are its internal waters under the Philippine Constitution. Under the UNCLOS, transit passage through straits used for international navigation constitutes a separate legal regime established principally for the military interests of the naval powers. In continuity with archipelagic sea lanes

passage, all ships and aircraft, have the freedom of navigation and overflight through these straits. Again, submarines are allowed passage in their normal modes (i.e., underwater). Where these straits do not form part of archipelagic sea lanes, transit passage through them constitutes an additional restriction to Philippine territorial sovereignty, quite apart from the archipelagic sea lanes and innocent passage through connecting waters of the country's islands.

Obviously, on the whole, the UNCLOS raises fundamental questions which bear directly on the security and integrity of the Philippine State. why the Philippines must pay such a heavy price in the interest of the military powers points to a review of the Philippine position with respect to the UNCLOS. The impact of the UNCLOS on the Philippine situation is nothing short of reorganizing the country's entire territorial regime, with the result that Philippine sovereignty becomes unrecognizable as it is established under its Constitutional system.

IV. ANALYSIS OF DATA

A. RESULTS OF INTERVIEWS

In the conduct of the study, three ranking military officers were interviewed and four from the civilian sector, as follows:

- Commodore Arturo Y. Capada, Commandant of the Philippine Coast Guard, Philippine Navy.
- Captain Eduardo Ma R. Santos, Chief of Naval Staff of the Philippine Navy.
- General Leo S. Alvez, Group Commander of the Presidential Security Group.
- Mr. Jim Paredes, head of the Green Earth Movement.
- Assistant Secretary Serafin D. Talisayon of the National Security Council.
- Director Ricardo V. Serrano, chief of Public Affairs Office of the Department of Environment and Natural Resources (DENR).
- Undersecretary Ricardo M. Umali of the DENR.

To the navy officers, the following questions were posed:

1. With the passage of the AFPs modernization plan, how much does the Philippine Coast Guard (PCG) intend to spend for marine environmental protection?
2. What are PCG's specific plan(s) to upgrade its environmental protection capability?
3. How do these plans tie up with the over all Philippine Navy's environmental protection strategy?
4. What are the expected problem areas that would tend to hinder such plans?
5. Which of the environmental issues and concerns should the Philippine Navy focus on; what areas are of most immediate concern and which are most amenable to the navy's participation in their solution?

6. What is the most fruitful framework for discussing these issues and who should address them and how should they be tackled?
7. What are your personal comments on the navy as an environmental agent? What can the navy do with regards the problem without sacrificing its traditional role of defense? What is the navy's traditional role in the environmental area? What are its existing capabilities? Which environmental problems fall within these traditional roles? Which of these problems are currently being addressed by the navy? How can the efficiency and effectiveness of these efforts be increased? Can these issues be better addressed by non-military activities?
8. What environmental problem areas are not adequately addressed by other institutions or organizations? In which of these areas does the military have unique capabilities or advantages today and in the future? Of these areas, which problems require capabilities that match or reinforce naval capabilities in existing missions? Which add on or develop capabilities are necessary for traditional or emerging naval/military missions?
9. What are the potential problems using the Philippine Navy and/or the PCG as an environmental agent? Advantages?
10. What is the Philippine Navy doing to eradicate an image of being a polluter itself?
11. Is the environment reasonably seen as a national security issue? Which environmental issues are most significant for national security planning and which national security issues have the most bearing on environmental issues?
12. Is it better for the PCG to be under the Philippine Navy or under another agency to fully carry out its duties? Why or why not? What would be the role of the Philippine Navy with regards to the environmental problem if the PCG is separated from it?

The civilian respondents were only given questions number 7, portions of 8, 9, 11 and 12 .

The responses to the direct questions posed to the military officers may be categorized into the following:

- Capability-building measures in terms of financial support, manpower training and equipment procurement.
- Role Identification.
- Problem Areas.
- Definitive Actions/Recommendations

Commodore Capada shared the following insights, which likewise reflect the responses of the two other officers:

The Modernization Plan is a product of the aggregate efforts of the major services of the AFP. The PN, particularly N-5, contributed to this effort by coming up with its own Modernization Plan. Being subordinate to the navy, the PCG has therefore no authority to determine the amount to be spent for marine environmental protection. It can only recommend inclusion of certain marine environmental protection programs/projects in the PN Modernization Plan.

The plan of the PCG to upgrade its environmental protection capability includes the following:

- Enhancement of the MARPOL centers in Manila, Cebu and Davao.
- Acquisition of the following assets:
 - NOCOP Laboratory equipment
 - MARPOL vessels (3) for deployment in Manila/Cebu and Davao
 - Oil containment booms and stickers for deployment in the eight Coast Guard districts
 - Additional communications equipment/facilities
 - Work boats to monitor ports and harbors
 - Oil skimmer boat with oil containment boom
- Enhance the training of personnel on MARPOL control and clean-up operation.

The PCG is not aware of any documented environmental protection strategy of the Navy. However, in the PN Modernization Plan, acquisition of eight MARPOL vessels beginning year 2000 for the Coast Guard was included.

To pursue its plans for marine environmental protection, the PCG depends largely for support from the PN. Yet, it is difficult for the Navy to give priority to the requirements of

the Coast Guard in view of the pressing need to upgrade the capability of the Navy for the country's defense posture.

On the question of which environmental issue the Navy should focus on, Commodore Capada said that since the Navy is a sea-going service, it should obviously focus on the area of protection of the marine environment and the interdiction of vessels used as transport in the trade of environmentally endangered products. The areas of most immediate concern and the most amenable to its participation are the areas involving coral reef destruction, illegal trade in corals, illegal trade in endangered/protected species, illegal trade in wood and timber, illegal/harmful methods of fishing and the discharge or dumping of oil and other effluents into the sea, lakes and rivers. The most fruitful frameworks for discussing these issues are through bilateral and multilateral fora between the many different concerned agencies such as the PN, PCG, DENR, PPA, PNP MARICOM, shipping companies, etc. The Shipping and Ports Advisory Council (SPAC) is a presidential advisory body chaired by the SOTC or his representative that meets, discusses, and forwards recommendations on issues affecting shipping and ports (to include marine environmental issues).

As a major unit of the AFP, the PN is a major partner in development. Being the navy of a developing country, the Philippine Navy has a key role to play as an environmental agent, especially in peacetime. Because of its limited resources, the country needs to maximize the use and potential of all its assets. The Philippines is an archipelagic country with a total area two-thirds of which is water. The need for effective environmental management over this huge area is great and yet the cabinet department responsible (DENR) does not have a fleet at its disposal to perform the functions related to the protection of the marine environment. The DENR has to rely on the capabilities of other government agencies with existing floating assets, principally the navy. Again, the paucity of government funds makes it necessary for the Philippine Navy to become an active environmental agent, more so perhaps than in developed countries.

In the performance of its environment-related tasks, the Navy need not necessarily sacrifice its traditional role of defense against external threats. The Navy exercises its functions of marine environmental protection only as a collateral duty. It does not have a

traditional role in environmental protection per se. It is, as a government agency, bound to stop or prevent any activities which come to its attention, while engaged in naval operations, which are considered by the government harmful to the environment. In its drive for industrial progress, understandably, the country has come to expect more from the Navy in terms of contributing to the protection of the environment. The function of external defense, however, still remains its most important and primary function. The Navy, through its naval operating and defense forces, traditionally conducts patrols within Philippine coastal waters and in the course of the same, is involved in preventing or stopping activities harmful to the environment--such as fishing through illegal/harmful methods, destruction of corals, the illegal trade in corals and other protected/endangered marine resources, oil pollution, the dumping of effluents into the seas and rivers, etc. The naval maritime/defense forces basically have their bottoms and the ability to stay on station.

At the same time, Commodore Capada took exception to the use of the terms "Navy" and "Coast Guard" in the Philippine context. In the Philippines, the Coast Guard belongs to the Navy. For the sake of clarity, Commodore Capada put forward the following definitions:

- NAVY -- naval operating and naval defense forces (PHILFLEET)
- COASTGUARD -- maritime safety agency (PCG)

The Navy, then, has under it a major unit which is the country's lead agency specifically tasked with maritime safety administration, the main functions of which are the promotion of life and property at sea and the protection of the marine environment. Among the PCG's capabilities are:

- National Operations Center for Oil Pollution (NOCOP) which maintains an inventory of pollution combating equipment such as skimmers, oil separators, booms, etc., in strategic positions around the archipelago.
- Vessels (M.U.S.C.L.E. boats, patrols boats, buoy & light tenders, SAR ships)
- Coast Guard stations and detachments.
- PCG Auxiliary (a volunteer organization which complements the PCG in SAR and marine environmental protection).

Because of the low budget priority given to environmental issues, and inasmuch as there is no agency/fleet exclusively committed to environmental protection (i.e. Navy and

the Coast Guard are both tasked to perform multiple functions) and because of the very complicated Philippine archipelagic and coastal system, one could say that most, if not all, environmental problem areas are not adequately addressed.

As military organizations, the Navy and the Coast Guard have numerous unique capabilities and advantages in terms of enforcing environmental protection laws. In a country with our financial resources and geography, they are natural partners in the preservation of the marine environment. Their men are on duty and ready to serve on a 24-hours-a-day, 365-days-a-year basis, without overtime pay, in great numbers, in any part of the archipelago, are even duty-bound to come into harm's way when necessary. The Navy and the Coast Guard have in their inventories, existing vessels that can be directed to operate when needed. All of the environmental activities in which it is involved, help the Navy develop its capabilities while at the same time contribute to nation-building.

The greatest potential problem in using the Philippine Navy as an environmental agent is the degree to which it could be expected to perform this particular function. As earlier mentioned, the Navy's mission is national defense against external threats. This mission demands a great deal of time and resources in terms of preparation, education, and training. In the final analysis, missions related to environmental protection take a back seat. They are performed only for as long as they do not interfere with regular naval operations. Another result is that it can never be performed with such detail and attention. Environmental protection is a technical and specialized function which demands just as much preparation, education, and training. Engaging in such an enterprise would only distract the Navy from its traditional role of naval defense.

It is for this reason that Coast Guard must be totally separated from the Navy. For as long as the PCG remains a unit of the PN, its mission of environmental protection will never be given the attention it truly deserves.

During the years when there was no environmental consciousness in the country in general, and the Navy in particular, it could be said that the issue of marine pollution by Navy vessels was not one that was given due attention. In recent years, however, greater awareness of environmental issues has led the Navy to issue strict guidelines. Diluted fuel

is now collected in drums and off loaded ashore instead of bilged out to the sea. The problem, to be sure, can be best addressed by the provision of reception facilities in our ports. Such facilities, however, are expensive to construct and still need to be given priority.

The environmental is definitely a national security issue. The environment is, in fact, a global security issue. Nevertheless, when considering the environment in the light of national security, there should be a distinction between national security (naval defense provided by the Navy) and environmental protection (protection of the marine environment as performed by the Coast Guard) because it would only be in doing so that both can be properly attended to. The two are intertwined but care must be taken so as not to be seen as one. Naval defense can be performed with proper consideration to environmental concerns just as environmental protection can be performed with due attention to national defense considerations.

To fully carry out its duties, the PCG must first be taken out of the PN and created as a separate service, preferably under the Department of Transportation and Communications. This is implied in the preceding statements above. Following are some of the most important reasons for separation:

- For as long as Coast Guard personnel are subject to the navy rotation policy, they will never be able to specialize in coast guard work; by the same token, the coast guard will never be able to optimize whatever skills may have been developed by its personnel.
- There is a fundamental difference between navy and coast guard work that is often overlooked. Naval Defense (PN) is not congruent with maritime safety administration (PCG). The former is concerned with providing defense and offense capabilities in case of external aggression against the Philippines while the latter is concerned with, inter alia, ensuring that commercial vessels are fit for service to safely transport the riding public in inter-island voyages and to ensure that vessels do not pollute the seas.
- The PCG's connection with the defense establishment prevents it from benefitting from aid programs from countries eager to see a more active maritime environmental protection program in the Philippines but who are bound by governmental policies not to donate equipment which maybe used by military formations.
- For as long as the PCG is with the Navy, the former's budget will always be subject to the priorities set in the interest of naval defense.

The civilian respondents presented the following views:

- As per its mandate and as a logical consequence of its functions, the Philippine Navy should focus on the protection of marine life and the monitoring and control of violations of existing rules and regulations on the said subject - marine protection and enhancement. It should act as the focal point for such actions in the absence of a single agency that oversees the implementation of environment-related rules and regulations.
- The Philippine Navy and the Philippine Coast Guard in particular could play a pivotal and significant role in the pursuit of economic development, to include environment protection and enhancement. This is in line with the thinking of government that every agency in the bureaucracy should contribute its share in pushing forward the twin goals of Philippines 2000, one of which is global competitiveness which needless to day goes hand in hand with ecological balance. Therefore, in this context the Philippine Navy is an important environmental agent. In fact, while the Philippine National Police has a maritime arm, it does not have the capability to carry out its functions because of the absence of a capable fleet that only the Navy has.
- The Philippine Navy and the Philippine Coast Guard in particular should expand its environmental role not only addressing violations to maritime rules and regulations but more so, in ensuring the protection of marine resources through vigilant patrolling of shorelines and the EEZ. In so doing, it will not necessarily relegate its traditional defense role because it is presumed to be well-equipped to undertake sea control under the modernization plan of the AFP.
- The environmental problem area not effectively addressed by any government agency and which is of grave concern to most Filipinos directly affected as a result, is the depletion of our seas of its marine resources. A number of foreign trawlers are fishing in our seas undetected and the volume of fish taken and the destruction made cannot be quantified. In addition, the level of ecological consciousness does not appear to be high enough to push government programs on the issue to the forefront.
- We see the need for a single agency to act as overseer to the environment protection programs of government. However, inasmuch as several government agencies are already involved, performing varied albeit related environmental functions, an inter-agency committee that could orchestrate all these interrelated functions is deemed sufficient for the moment.
- As a major element of national security, ecological integrity is a serious national security concern. The Philippines being an archipelagic country, has much to lose if issues affecting the environment are not given priority attention. Our resources are not limitless and this early and perhaps, we should say, it is becoming to be an

urgent matter already, the government should be more adamant in its position to enforce environment laws.

B. RESULTS OF SURVEY

In addition to the personalities interviewed, the students of the ongoing Naval Intelligence Officers Course at the Naval Intelligence Training Institute (NITI) were given a set of questions, as follows:

1. In your perception, what is the role of the Philippine Navy or any of the units under it, in the protection of the environment?
2. Do you think this role is sufficient to address the current issues affecting the environment?
3. What are the most pressing environmental issues that the government needs to address and where the navy could be of great assistance? What would be the form of assistance?
4. What are the problems facing the navy that hinder its environment protection functions?
5. Could you suggest solutions to these problems?

Of the 34 students who responded to the questionnaire, 66% said the Navy is responsible for patrolling the shores and for protecting the country from piracy, smuggling, pollution and other environmental degradation of marine resources. These functions are carried out by the Coast Guard and not the Navy itself. 35% said the patrolling function is not sufficient to ensure protection of marine resources. 78% noted that there are a number of environmental issues that the government should look into such as over fishing, illegal trade, smuggling of marine species, other forms of pollution aside from oil spills and upgrading of the level of environmental awareness which is sometimes impeding the work of the Coast Guard in running after violators of fishing laws. Among the problems facing the navy that the students cited, majority mentioned the budget, personnel and the restructuring

that the Navy is implementing which would decrease its regional presence. Among the solutions recommended are:

- The Philippine Coast Guard should be upgraded as a service to act as the main arm for the protection of the environment and be separated from the Navy.
- As a separate entity, the PCG should be given its own budget to carry out its multifarious functions.
- The efforts of government to protect the environment and enforce ecological laws must be integrated and towards this end, a higher body should be created to oversee such efforts.
- The government must enact a stronger law on environmental violations and the fines thereof be increased to discourage violators.

V. RECOMMENDATIONS

Based on the data in Chapter IV, the following recommendations are presented:

- There are apparently enough laws to protect the Philippine seas and its resources and environs. However, what appears lacking is an integrated law that already considers the complexity of the issue and the commitments of the Philippines in the international arena. It is thus recommended that all existing laws on the issue be studied for the purpose of consolidating them to give the new law more teeth for implementation February 1, 1995.
- The Philippine Coast Guard should be strengthened to enable it to accomplish its mission and carry out its tasks with the view to eventually upgrading it and separating it from the Philippine Navy to give it the clout that will be necessary for enforcement purposes.
- The environment protection tasks of the PCG should be expanded and so specified to avoid overlap and should already subsume the maritime functions of the PNP.
- The task force that is charged with policy making on environment issues must likewise be strengthened by converting it into an interagency committee backed by legislation and supported by a Secretariat to ensure a continuity in work and attention. A task force is ad hoc in nature and therefore it only exists for a purpose and once this is accomplished, it is dissolved. Given the enormous task ahead, there must be a permanent entity that will promulgate laws on the environment.

APPENDIX

In researching information to compile this thesis, the Internet proved to be a particularly rich source of information. The short history of environmental science creates a lack of published up-to-date information. On the Internet up-to-date and current information is available about environmental concerns. Discussions on the Internet are topical and cover the full range of the opinion on any environmental subject. In addition, there is information not widely published (contents of treaties, etc) in the U.N. home page. Also, there are many reports from committees and groups which would never see wide publication if it were not for the capabilities of the Internet. The following list is a bibliography of my Internet sources which were used throughout this thesis.

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